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SMITHSONIAN INSTITUTION

U.S. BUREAU OF AMERICAN ETHNOLOGY

BULLETIN 179

RIVER BASIN SURVEYS PAPERS

FRANK H. H. ROBERTS, JR., *Editor*

Inter-Agency Archeological Salvage Program

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LETTER OF TRANSMITTAL

Smithsonian Institution,
Bureau of American Ethnology,
Washington, D.C., September 30, 1959.

Sir: I have the honor to submit the accompanying manuscripts, entitled "Excavations at Texarkana Reservoir, Sulphur River, Texas," by Edward B. Jelks; "Archeological Investigations at the Coralville Reservoir, Iowa," by Warren W. Caldwell; "The McNary Reservoir: A Study in Plateau Archeology," by Joel L. Shiner; "The Sheep Island Site and the Mid-Columbia Valley," by Douglas Osborne, Alan Bryan, and Robert H. Crabtree, and to recommend that they be published as a bulletin of the Bureau of American Ethnology.

Very respectfully yours,

Frank H. H. Roberts, Jr.,
Director.

Dr. Leonard Carmichael,
Secretary, Smithsonian Institution.

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EXPLANATION OF THE INTER-AGENCY ARCHEOLOGICAL SALVAGE PROGRAM

The Inter-Agency Archeological Salvage Program is a cooperative plan of the Smithsonian Institution; the National Park Service and the Bureau of Reclamation, Department of the Interior; and the Corps of Engineers, Department of the Army. It was formulated, through a series of interbureau agreements, for the purpose of recovering archeological and paleontological remains which would otherwise be lost as a result of the numerous projects for flood control, irrigation, hydroelectric power, and navigation improvements in the river basins of the United States. Various State and local agencies have assisted in the work. To carry out its part of the joint undertaking, the Smithsonian Institution organized the River Basin Surveys as a unit of the Bureau of American Ethnology. The National Park Service has served as liaison between the various agencies and has provided the Smithsonian Institution with all of the necessary information pertaining to the location of proposed dams and other construction and their priorities. It has also had responsibility for budgeting costs of the program, funds for which are provided in the annual Department of the Interior appropriations. The operations of the River Basin Surveys, Smithsonian Institution, have been supported by funds transferred to it from the National Park Service. Through agreements with the National Park Service, money has also been made available to State and local agencies to supplement their own resources and aid them in their contributions to the program.

The River Basin Surveys Papers, of which this is the sixth bulletin, are issued under the scientific editorship of Frank H. H. Roberts, Jr., director of the Bureau of American Ethnology.

PUBLISHER'S NOTE

A separate edition is published of each paper in the series entitled "River Basin Surveys Papers." Available copies of Papers 1–24 can be had upon request to the Publications Office, Smithsonian Institution, Washington 25, D.C.

RIVER BASIN SURVEYS PAPERS PUBLISHED PREVIOUSLY

No. 1. Prehistory and the Missouri Valley Development Program: Summary Report on the Missouri River Basin Archeological Survey in 1948, by Waldo R. Wedel. Bull. 154, pp. xv–xviii, 1–59, pls. 1–12, fig. 1. 1953.

No. 2. Prehistory and the Missouri Valley Development Program: Summary Report on the Missouri River Basin Archeological Survey in 1949, by Waldo R. Wedel. Bull. 154, pp. 61–101, pls. 13–15. 1953.

No. 3. The Woodruff Ossuary, a Prehistoric Burial Site in Phillips County, Kansas, by Marvin F. Kivett. Bull. 154, pp. 103–141, pls. 16–28, figs. 2–3. 1953.

No. 4. The Addicks Dam Site:

- I. An Archeological Survey of the Addicks Dam Basin, Southeast Texas, by Joe Ben Wheat. Bull. 154, pp. 143–252, pls. 29–47, figs. 4–23. 1953.
- II. Indian Skeletal Remains from the Doering and Kobs Sites, Addicks Reservoir, Texas, by Marshall T. Newman. Bull. 154, pp. 253–266, figs. 24–28. 1953.

No. 5. The Hodges Site:

- I. Two Rock Shelters near Tucumari, New Mexico, by Herbert W. Dick. Bull. 154, pp. 267–284, pls. 48–54, figs. 29–30. 1953.
- II. Geology of the Hodges Site, Quay County, New Mexico, by Sheldon Judson. Bull. 154, pp. 285–302, figs. 31–35. 1953.

No. 6. The Rembert Mounds, Elbert County, Georgia, by Joseph R. Caldwell. Bull. 154, pp. 303–320, pls. 55–56, figs. 36–40. 1953.

No. 7. Archeological Investigations in the Oahe Dam Area, South Dakota. 1950–51, by Donald J. Lehmer. Bull. 158, 190 pp., 22 pls., 56 figs., 6 maps. 1954.

No. 8. Excavations in the McNary Reservoir Basin near Umatilla, Oregon, by Douglas Osborne. With appendixes by Marshall T. Newman, Arthur Woodward, W. J. Kroll, and B. H. McLeod. Bull. 166, 250 pp., 40 pls., 6 figs., 19 maps. 1957.

No. 9. Archeological Investigations in the Heart Butte Reservoir Area, North Dakota, by Paul L. Cooper. Bull. 169, pp. 1–40, pls. 1–12, figs. 1–2. 1958.

No. 10. Archeological Investigations at the Tuttle Creek Dam, Kansas, by Robert B. Cumming, Jr. Bull. 169, pp. 41–78, pls. 13–24. 1958.

No. 11. The Spain Site (39LM301), a Winter Village in Fort Randall Reservoir, South Dakota, by Carlyle S. Smith and Roger T. Grange, Jr. Bull. 169, pp. 79–128, pls. 25–36, figs. 3–4. 1958.

No. 12. The Wilbanks Site (9CK–5), Georgia, by William H. Sears. Bull. 169, pls. 37–45, figs. 5–9. 1958.

No. 13. Historic Sites in and around the Jim Woodruff Reservoir Area, Florida-Georgia, by Mark F. Boyd. Bull. 169, pp. 195–314, pls. 46–55, figs. 10–11. 1958.

No. 14. Six Sites near the Chattahoochee River in the Jim Woodruff Reservoir Area, Florida, by Ripley P. Bullen. Bull. 169, pp. 315–357, pls. 56–73, figs. 12–13. 1958.

No. 15. Historic Sites Archeology on the Upper Missouri, by Merrill J. Mattes, Bull. 176, pp. 1–23.

No. 16. Historic Sites Archeology in the Fort Randall Reservoir, South Dakota, by John E. Mills, Bull. 176, pp. 25–48, pls. 1–9, figs. 1–2, map 1. 1960.

No. 17. The Excavation and Investigation of Fort Lookout Trading Post II (39LM57) in the Fort Randall Reservoir, South Dakota, by Carl F. Miller, Bull. 176, pp. 49–82, pls. 10–18, figs. 3–14, map 2. 1960.

No. 18. Fort Pierre II (39ST217), a Historic Trading Post in the Oahe Dam Area, South Dakota, by G. Hubert Smith, Bull. 176, pp. 83–158, pls. 19–30, maps 3–4. 1960.

No. 19. Archeological Investigations at the Site of Fort Stevenson (32ML1), Garrison Reservoir, North Dakota, by G. Hubert Smith. (Introduction by Robert L. Stephenson and an appendix by Carlyle S. Smith), Bull. 176, pp. 159–238, pls. 31–54, figs. 15–20, maps 5–6. 1960.

No. 20. The Archeology of a Small Trading Post (Kipp's Post, 32MN1) in the Garrison Reservoir, North Dakota, by Alan R. Woolworth and W. Raymond Wood, Bull. 176, pp. 239–305, pls. 55–65, figs. 21–25, map 7. 1960.

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FOREWORD

The four papers comprising the present volume report the results of excavations in three reservoir areas. One, the Texarkana, is located in northeastern Texas on the Sulphur River; the second, the Coralville, in east-central Iowa on the Iowa River; and the third, the McNary, on the Columbia River between the States of Washington and Oregon. All four projects were carried on by the River Basin Surveys of the Smithsonian Institution in cooperation with the National Park Service and the Corps of Engineers.

The investigations at the Texarkana Reservoir were started in 1949 when a preliminary survey was made in September and October by Robert L. Stephenson, who at that time was chief of the River Basin Surveys project in Texas. Dr. Stephenson was assisted during part of the survey by Herbert C. Taylor, a graduate student from the University of Texas, who worked as a collaborator, using funds provided by Dr. Alexander D. Krieger of the University of Texas Anthropological Museum. Dr. Krieger at that time was engaged in a program for mapping various mound sites in and near the Big Bend of the Red River, and since the Texarkana Reservoir area, on a tributary of the Red, was involved he graciously contributed the services of Mr. Taylor and financed his efforts from money which had been granted to him by the Viking Fund, now the Wenner-Gren Foundation for Anthropological Research. M. P. Miroir of Texarkana served as a voluntary collaborator and assisted Dr. Stephenson sporadically during the entire time of the preliminary survey. He also provided a jeep for work in areas which were too rough for the vehicle normally used to traverse. During the months following Dr. Stephenson's investigations in the area, Mr. Miroir made occasional field trips, checking on various sites, and passed on to Dr. Stephenson artifacts picked up from the surface and the information thus obtained.

As the result of the cooperative work in the Texarkana survey, 50 sites were located. All represented open occupational areas, 17 being the remains of large villages, 20 smaller camping locations, and 10 places where non-pottery-using peoples lived. The main features at the other three were artificial mounds, commonly called "capped ridge" because they were built by piling additional earth on top of the highest natural points on small ridges. When the preliminary appraisal report on the results of the Texarkana survey was issued it recommended that excavations be made in 11 of the sites and that minor test trenching be done at four others. Because of lack of funds it was not possible to initiate fieldwork at Texarkana until the spring of 1952, and the money then available was sufficient only for the work done at the three sites which Mr. Jelks describes in his report. The area was important because of its position with respect to the Caddoan remains along the Red River to the east and south, and it is unfortunate that more digging could not have been accomplished. Most of the area has been under water for several years.

The initial investigations at the Coralville Reservoir in Iowa were made in January and February of 1949 by Richard P. Wheeler. Weather conditions at that time were not favorable to reconnaissance work, but because construction of the Coralville Dam seemed immiment it was thought necessary to determine to some extent what archeological investigations might be involved. Wheeler located 8 mound sites and 1 occupation area and learned from local residents of 10 other sites in the Basin. He was able to study artifacts previously collected from the surface at those sites, but because of a deep cover of snow could not inspect the areas where the specimens were found. Mr. Wheeler's work did demonstrate that the Coralville Basin merited further study, and such was recommended. It was not possible to resume investigations there in the immediately ensuing years since money for that work was not appropriated. It was not until the summer of 1956 that funds were provided for some additional work in that region. By that time construction of the dam was proceeding so rapidly that it was decided to devote all the efforts to excavations rather than to completing the survey. Because of its location with respect to the Missouri Basin Project, the salvage party under Dr. Warren W. Caldwell operated out of the field headquarters at Lincoln, Nebr. During the period from August 28 to October 13, Dr. Caldwell's group completed the excavation of one rock shelter, tested two others, dug three occupation sites in the open, and tested three others. In addition, two mounds were also excavated. The results of this work are given in the paper by Dr. Caldwell. The Coralville Dam was completed in 1958 and most of the sites in the reservoir basin have been flooded.

Starting in the summer of 1947, work in the McNary Reservoir area along the Columbia River was carried on over a period of several years. The results of some of the excavations conducted by River Basin Surveys parties have already been published in River Basin Surveys Paper No. 8, "Excavations in the McNary Reservoir Basin near Umatilla, Oregon," by Dr. Douglas Osborne. Digging at other sites is described by Dr. Joel L. Shiner in the report which constitutes the third paper in this volume. Dr. Shiner, however, has done more than make a series of detailed site reports, and presents a general study of archeology in the Plateau Area. In addition to reporting on the results of his own excavations, Dr. Shiner summarizes those obtained by other men working in the McNary Reservoir area. Some of the latter information is presented more fully by Dr. Osborne in his paper No. 8, but Dr. Shiner gives sufficient data to provide a well-rounded picture of the archeological manifestations in the McNary.

The fourth paper in this group presents the findings by Dr. Douglas Osborne and his assistants in the course of the excavations which they made on Sheep Island. Most of the digging was done in burial and midden areas, and while virtually no information pertaining to dwellings and other occupation area features was obtained, a good series of specimens was collected and the authors of the paper have been able to relate the Sheep Island remains to others in the mid-Columbia Valley. Some previous work had been done on Sheep Island by Thomas R. Garth. The authors of the present paper review and discuss Garth's findings and correlate them with their own.

The Shiner paper and the one on Sheep Island by Osborne, Bryan, and Crabtree, complete the reports for the work done in the McNary Reservoir area by the River Basin Surveys of the Smithsonian Institution. Other studies were made there by local institutions, but the results of their investigations will appear elsewhere.

Frank H. H. Roberts, Jr.
Director, River Basin Surveys

SMITHSONIAN INSTITUTION
Bureau of American Ethnology
Bulletin 179

River Basin Surveys Papers, No. 21

Excavations at Texarkana Reservoir Sulphur River, Texas

By EDWARD B. JELKS

FOREWORD

The following report was written in 1953–54. During the 6-year lapse between writing and publication, several papers have been published which duplicate, augment, or disagree with some of the concepts expressed here. It would have been desirable to rewrite several passages before going to press, but for several reasons that was not possible and I was faced with the problem of weeding out duplication and adding certain explanatory notes at the galley-proof stage. Since the cost of extensive revisions would have been prohibitive, I have resorted to the device of inserting comments here and there, in the form of footnotes, where the text might be confusing with respect to other publications which have appeared since this one was written, or where additional amplification was needed. The added comments are marked with asterisks (*) and are labeled "Author's note."

Many of the pottery and projectile-point types treated here had not been defined in print when this paper was written. Since then all of the types, except the two tentative pottery types Antioch Engraved and Higgins Engraved, have been described in detail in "An Introductory Handbook of Texas Archaeology" (Suhm et al., 1954), and some of the descriptions have been further amplified by Clarence H. Webb in "The Belcher Mound, a Stratified Caddoan Site in Caddo Parish, Louisiana" (1959).

March 1960.

EDWARD B. JELKS.

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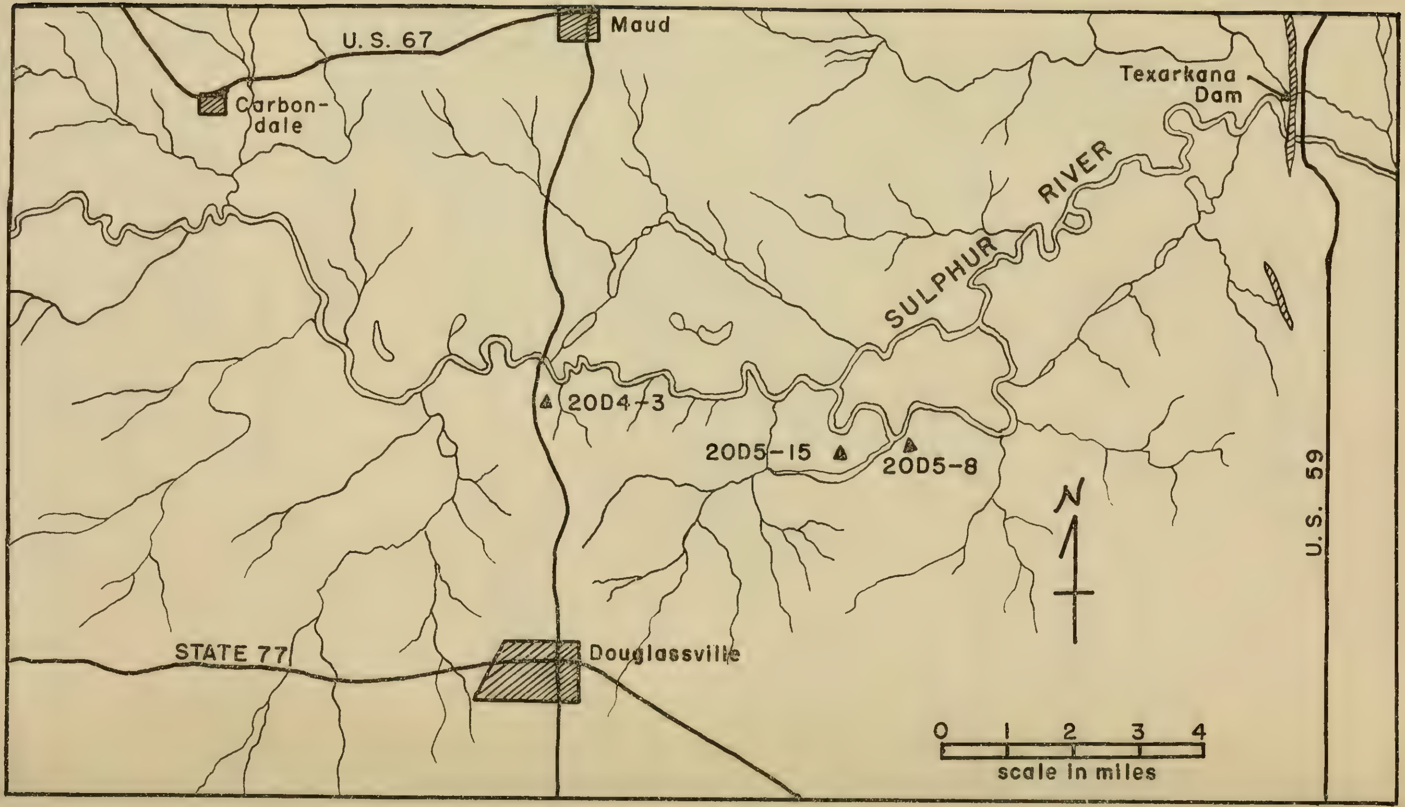
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FIGURE 1.—Map of Texarkana Reservoir area, showing location of the Knight's Bluff Site (20D5–8), the Sherwin Site (20D5–15) and the Snipes Site (20D4–3).

EXCAVATIONS AT TEXARKANA RESERVOIR, SULPHUR RIVER, TEXAS [1]

By Edward B. Jelks

INTRODUCTION

During the period April 28 to June 25, 1952, limited archeological excavations were carried on at three sites now inundated by the Texarkana Reservoir—the Knight's Bluff, Snipes, and Sherwin sites in Cass County, Tex. This project was part of the nationwide archeological salvage program of the River Basin Surveys, administered by the Smithsonian Institution in cooperation with the National Park Service, the Army Corps of Engineers, and the Bureau of Reclamation.

The excavations at Texarkana were under the immediate supervision of the writer, who was ably assisted in the field by Ensor O. Miller, Edward H. Moorman, and Adolph H. Witte, all three of whom served as foremen and assistant archeologists.

I wish to extend my thanks to all the men who worked on the Texarkana sites for their industry on the dig. I should like also to express my personal thanks, as well as the gratitude of the Smithsonian Institution, to M. P. Miroir, Texarkana, and I. B. ("Bogie") Price, Jr., of Atlanta, Tex., both of whom extended every possible assistance and courtesy to the entire field crew. Their interest in our investigations greatly facilitated the progress of the excavations.

The assistance rendered in the laboratory by Edward H. Moorman, who reconstructed the pottery and skeletal material and helped tabulate the artifacts, is gratefully acknowledged. Alex D. Krieger, who helped with the identification of pottery types and offered many valuable suggestions, contributed much to this report.

Most of all I am indebted to Miss Dee Ann Suhm, who not only cataloged all the artifacts and prepared the notes on physical anthropology for all three sites, but also proffered numerous suggestions regarding interpretation, many of which are incorporated herein.

---

[1] Manuscript submitted February 28, 1955.

SUMMARY OF CADDOAN AREA ARCHEOLOGY*

Before describing the three sites excavated at Texarkana Reservoir, a brief summary of archeology in the Caddoan Area, including definition of terms, history of previous research, discussion of recognized complexes, chronology, and examination of the outstanding problems, is deemed desirable. This summary is in no sense a complete coverage, but is intended rather as an extremely simplified outline which, it is hoped, will help orient the reader in a segment of North American archeology that is clouded by much uncertainty.

In an area embracing northeastern Texas, southeastern Oklahoma, northwestern Louisiana, and southwestern Arkansas occur archeological manifestations generally attributed to the Caddoan Indians of the early historic period and their forebears. Although the term "Caddoan" originally referred to a cultural group, it has, in recent years, been applied in a geographical sense to the territory in which are found remains presumed to be of Caddoan Indians. As used herein, the term "Caddoan Area" refers to the geographical area, and Caddoan Area archeology is therefore concerned not only with those remains that can be linked more or less certainly to Caddoan Indian groups, but to all indigenous archeological manifestations of the area.

HISTORY OF PREVIOUS RESEARCH

The first systematic investigation of Caddoan Area archeology was made by Clarence B. Moore in the first decade of the 20th century. Moore cruised the Red River in a steamboat, stopping at sites previously located by advance agents and excavating extensively with large crews of laborers. His published site reports (Moore, 1912) contain excellent site descriptions and illustrations, but do not attempt much in the way of interpretation. A few years later M. R. Harrington conducted surveys and excavations in the same region (Harrington, 1920).

Most interpretative research has taken place in the last 25 years, largely through the efforts of Clarence Webb, Monroe Dodd, Harry J. Lemley, Dr. and Mrs. T. L. Hodges, S. D. Dickenson, and others. The present classification of archeological complexes and much of the basic interpretation are to be credited to Alex Krieger, Perry Newell, and Kenneth Orr, and were founded largely on material excavated by the Works Progress Administration (under supervision of the Universities of Texas and Oklahoma). Recent contributions by Robert L. Stephenson (1952) and Donald J. Lehmer (1952), definitive of the Wiley and Turkey Bluff Foci respectively, have greatly clarified marginal complexes.

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*AUTHOR'S NOTE. This summary is partly duplicated in Suhm et al., 1954, pp. 144–150, 151–161, 216–219.

ARCHEOLOGICAL COMPLEXES

Suhm et al. (1954) recently defined and named four basic culture stages of the aboriginal occupation of Texas. Their classification will be followed herein. The four stages are:

(1) Paleo-American Stage—an early culture with economy based primarily on hunting; associated principally, or entirely, with fauna of the Pleistocene geologic era; previous designations include Paleo-Indian, Early Man, and Ancient Man.

(2) Archaic Stage—a hunting-gathering culture that followed the Paleo-American Stage; apparently associated only with modern fauna; characterized by large middens, corner- and side-notched dart points, and evidence of gathering activities; generally antedates ceramics, agriculture, and the bow and arrow.

(3) *Neo-American Stage*—a culture stage marked by local specializations in economic practices, arts, technologies, and ceremonialism; basic subsistence by agriculture, although some groups subsisted by specialized hunting techniques or commercial trading; marker traits include large villages with permanent type houses, ceramics, and the bow and arrow.

(4) Historic Stage—a period of convergence and coalescence of the diverse units making up the preceding Neo-American Stage; aboriginal technologies and economic patterns disrupted by impact of European invasion; frequent association of European trade material.

All four of these broad stages can be distinguished in the Caddoan Area and will be taken up in chronological order.

PALEO-AMERICAN STAGE

No artifacts attributable to the Paleo-American Stage have been found in situ in the Caddoan Area to the writer's knowledge. There is considerable evidence, however, that Paleo-American peoples did frequent that region, since many projectile points found there are typologically identical to forms found elsewhere in Paleo-American contexts. J. F. Lentz, of Marshall, Tex., has in his collection of Indian artifacts a fragment of a "classic" Folsom point that he found on the surface of a Neo-American site in Harrison County, Tex., and the writer has observed specimens of Clovis and Scottsbluff points collected from the surface of sites in northeastern Texas, northwestern Louisiana, and southwestern Arkansas. Newell and Krieger (1949, pp. 170–172 and fig. 57, v) reported a fragment of a fluted point (Folsom?) at the Davis Site in Cherokee County. In addition, many projectile points found in the Caddoan Area appear to fit the general Paleo-American typology, although assignment to any of the recognized types cannot be definitely made at present. The presence of Scottsbluff points in the Caddoan Area in significant numbers is especially intriguing, as their occurrence there may be in the form of an island in reference to the total known distribution of the type. There is an alternate possibility: that a peninsular extension of Scottsbluff may descend from the Plains Area into the Caddoan Area.

In brief, Clovis and Scottsbluff projectile points and at least one Folsom point have been observed in local collections of artifacts, testifying to the probability that the Paleo-American Stage is represented in the Caddoan Area. Unfortunately no sites actually occupied by these early peoples have been identified, possibly because most workers in the area have concentrated on the relatively productive Neo-American sites and have expended little or no effort in searching for earlier material. Dense vegetation and limited erosion, too, tend to reduce the chances of discovering buried occupation zones. Private collections examined by the writer contain a few Paleo-American dart points, almost without exception, although the collectors in many cases had not recognized them as such. The collectors generally did not remember where a particular specimen was found, but most of the specimens seem to have been picked up from the surface of Neo-American sites. There is no immediate solution to the question of how these early projectile points came to be at comparatively recent sites.

ARCHAIC STAGE

A preceramic Archaic Stage characterized by corner-notched or stemmed dart points and such polished stone implements as celts, grooved axes, bannerstones, and boatstones has been recognized over the Southern States from the Atlantic Ocean to eastern Oklahoma and Texas (Krieger, 1953, p. 259). Archaic sites in the Caddoan Area belong to that tradition, with perhaps some regional and local variations.

Specific Archaic traits in the Caddoan Area are: Dart points of the types Gary (Newell and Krieger, 1949, pp. 165–166 and fig. 57), Ellis (ibid., pp. 166–167 and figs. 57, 58), Yarbrough (ibid., p. 168 and fig. 57), and San Patrice (Webb, 1946, pp. 13–15 and pl. 1);* chipped-stone blades, scrapers, drills and choppers; three-quarter and full-grooved axes, celts, bannerstones, boatstones, pitted stones, manos, and grinding slabs.

Knowledge of the Archaic is scanty at present, principally because research, for the most part, has been concerned primarily with the relatively abundant Neo-American material and only cursory investigation of preceramic sites has been made. There can be no doubt, however, that the Caddoan Area Archaic is most closely related to the Southeastern Area Archaic rather than to Archaic complexes to the west. Gary, Ellis, Yarbrough, and San Patrice points, as well as Albany spokeshaves and other Archaic artifact forms, are frequently found in Neo-American components, which suggests that the Archaic is ancestral, at least in part, to the Neo-American in the Caddoan Area.

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*Author's note. Suhm et al. (1954, p. 150) have listed the following additional types for the East Texas Aspect: Wells, Kent, Morrill, Trinity, Elam, Carrollton, Edgewood, Darl, Palmillas, Bulverde, Williams, Uvalde, Lange, Lerma, and Ensor.

Archaic sites tend, in general, to be small, probably reflecting a seasonal, migratory economy founded on hunting and gathering. In contrast to many Neo-American and Historic sites that are situated on stream terraces, most Archaic sites lie on the crests and slopes of hills.

In terms of absolute dates, accurate placement of the Caddoan Area Archaic cannot be made at present. Its relative position, prior to the Neo-American Stage, is well established, however, on distributional, typological, and stratigraphic evidence.

NEO-AMERICAN STAGE

This stage is marked by the appearance of ceramics and the bow and arrow. Sedentary villages with permanent houses and an agricultural economy typify most sites, but the use of those two features as time markers in distinguishing between Archaic and Neo-American complexes is subject to an element of doubt because present knowledge of the Archaic is only superficial.

Two aspects have been recognized in the Neo-American Stage of the Caddoan Area. The Gibson Aspect, earlier of the two, is characterized by the following traits:

Ceramics—clay, sand, grit, and bone-tempered pottery; well polished bowls and bottles with expertly engraved designs; polished, incised vessels; carinated bowls, usually with concave bases; bottles with tapering necks; long-stemmed, thin-walled clay pipes; effigy clay pipes of human and animal forms; absence of brushing as a surface treatment of ceramics; absence of shell as a tempering agent. Compared with the later Fulton Aspect, Gibson Aspect has a relatively large proportion of plain and polished-incised vessels and a relatively small proportion of roughened utility vessels.

Ground and polished stone artifacts—effigy pipes, earspools, celts, and sandstone hones.

Chipped-stone artifacts—Copena blades and projectile points of several distinctive types.

Mounds—Both temple and burial mounds are common.

Five Gibson Aspect Foci have been recognized: Alto, Gahagan, Spiro, Sanders,[2] and Haley. One feature common to all is that most sites are large, centralized villages with few outlying sites. The large villages are widely separated as a rule.

Alto Focus and the closely related Gahagan Focus are thought to be earliest of the Gibson Aspect Foci. No burials were found at the Davis Site, type site for Alto Focus, but a large conical mound located there has not been excavated and burials are probably to be found therein. Gahagan Focus is represented by only one excavated site, the Gahagan Mound on Red River in western Louisiana, where ceramics of Alto Focus types were found in graves. That Alto and Gahagan are very closely related cannot be disputed, and the possibility that both should belong to the same focus must be considered. Conclusive statements, however, must be deferred until such time as sufficient data are available to determine the degree of relationship between the two foci.

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[2] The Nelson Focus (Bell and Baerreis, 1951) appears to be the Oklahoma equivalent of Sanders Focus. Since too little data are available for accurate definition of the Nelson Focus, it will not be considered here.

Spiro Focus ceramics are similar in many respects to those of Alto Focus, but house types, some chipped-stone implements, and other features are different. The rich ceremonial paraphernalia of Spiro Focus are not present at the Davis Site, but elaborate ceremonialism is indicated by grave furniture at Gahagan—although most individual specimens are not comparable to Spiro specimens.

Ceramics of the Sanders Focus, by and large, are quite different from the mutually related Alto-Gahagan-Spiro material. Intricately carved shells at Sanders, however, suggest a fairly close ceremonial relationship with Spiro, and some Sanders pottery types occur in components of the Spiro and Haley Foci.

Haley Focus has a combination of pottery types and other features occurring also in the Alto, Gahagan, and Spiro Foci plus new types and features which herald the appearance of the Fulton Aspect. For that reason, Haley Focus is generally considered to be late with reference to the other Gibson Aspect foci and to bridge, to more or less extent, into the Fulton Aspect.

The second division of the Neo-American Stage in the Caddoan Area has been termed the Fulton Aspect (Krieger, 1946). It is of later date than the Gibson Aspect and is distinguished by the following traits:

Ceramics—appearance of shell-tempered wares; continuation of clay, grit, and bone tempering; elaborate engraved designs on bowls and bottles with much use of ticked and spurred engraved lines; engraved lines are heavier and more forceful than in Gibson Aspect; bottle necks frequently flare at the lip; carinated bowls with flat bases; equal arm elbow pipes of clay; bird and animal effigy heads on bowl rims; rattle bowls.

Chipped-stone artifacts—arrow points of several distinctive types; blades, scrapers, drills, and other implements of various forms.

Twelve foci are presently considered to be affiliates of the Fulton Aspect. They are Frankston, Allen, Titus, Texarkana, Glendora, Bossier, Belcher, Mid-Ouachita, McCurtain, Wiley, Fort Coffee, and Turkey Bluff. All are Neo-American except Allen and Glendora, which are Historic. While a few large village sites are known in the Fulton Aspect, the tendency seems to be toward a great number of small, scattered components as opposed to the large, centralized Gibson Aspect sites. Mound building may have been deemphasized in Fulton Aspect times.

Foci of the Fulton Aspect can be separated into four broad divisions on the basis of degree of similarity between foci. One division is composed of the Frankston Focus and its intimately related Historic counterpart, Allen Focus.[3] Both are found between the Trinity and Sabine Rivers, centering in the upper Neches River area, and have been identified with the Hasinai tribes of the early Post-Contact Period and their immediate ancestors. Arrow point type Perdiz and pottery types Poynor Engraved, Bullard Brushed, Maydelle Incised, La Rue Neck Banded, and Killough Pinched are the principal diagnostics of Frankston Focus. Allen Focus has most of the Frankston Focus pottery types plus an additional type, Patton Engraved, not found in the earlier Frankston Focus. European trade material occurs frequently in Allen Focus, but not in Frankston Focus.

Although it shares specific types with some of the other foci, Titus Focus is sufficiently different from the others to be placed in a division by itself. Distinctive artifact types are Talco and Bassett arrow points (the former shared with Fort Coffee, the latter with Texarkana, Belcher, and Mid-Ouachita) and pottery types Ripley Engraved, Harleton Appliqued, Winfield Brushed, Leesburg Neck Banded, and Taylor Engraved (Taylor is also common in Texarkana, McCurtain, Bossier, Belcher, and Mid-Ouachita sites).* In general, engraved lines tend to be heavy and bold, and several vessel shapes are quite distinctive.

A third broad division of the Fulton Aspect includes Texarkana, Glendora, McCurtain, Mid-Ouachita, Bossier, and Belcher foci. All are closely related in ceramic types, distinctions between the six foci being based mainly on differences in house types, chipped-stone implements, and in slightly different techniques for applying designs to pottery vessels. There are also variations of the basic motifs and vessel shapes from focus to focus.

The fourth group of related Fulton Aspect foci consists of Wiley, Fort Coffee, and Turkey Bluff. They are characterized by a curious blend of traits, part of them related to the Plains Area to the west, the others to the Caddoan Area. Traits apparently derived from the Plains Area include a shell-tempered ceramic type, usually plain but sometimes bearing simple incised or punctated decoration, called Nocona Plain south of Red River and Woodward Plain north of that stream; triangular arrow points, side-notched or without notches; cache pits; bison scapula hoes and other bone implements; snub-nosed scrapers; shallow flexed or semiflexed burials, frequently without mortuary furniture (this applies with certainty only to Wiley and Fort Coffee, no burial data being available for Turkey Bluff). Caddoan Area traits common to the three foci include various pottery and arrow point types of both the Gibson and Fulton Aspects.

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[3] Although belonging to the Historic Stage, the Allen and Glendora Foci can best be reviewed in reference to the Fulton Aspect, the bulk of which fits into the Neo-American Stage. Therefore Allen and Glendora are included along with the other Fulton Aspect Foci in the present discussion.

*AUTHOR'S NOTE. Suhm et al. (1954, p. 192) list Ripley Engraved, Taylor Engraved, Bailey Engraved, Wilder Engraved, and Harleton Appliqued as the most characteristic pottery types of Titus Focus, with Glassell Engraved, Belcher Ridged, Belcher Engraved, and Karnack Brushed-Incised present in some sites. Leesburg Neck Banded is incorporated in type La Rue Neck Banded, and Winfield Brushed is incorporated in Bullard Brushed.

Situated in a narrow zone at the northwestern edge of the Caddoan Area, Wiley, Fort Coffee, and Turkey Bluff are closely related in many details to the Henrietta and Washita River Foci that occupy a narrow adjoining zone to the northwest. Henrietta and Washita River, usually classified as marginal Plains Area cultures, parallel the other three foci closely with respect to Plains traits, but are differentiated by the relatively infrequent occurrence of Caddoan Area traits.

It might be argued that Wiley, Fort Coffee, and Turkey Bluff should not be considered part of the Fulton Aspect proper, but are more on the order of intermediate complexes marginal to both the Caddoan and Plains Areas.*

HISTORIC STAGE

Two foci of the Fulton Aspect have been assigned to the Historic Stage because their components frequently contain European trade items such as glass beads, steel knives, and gun parts. One of them, the Allen Focus, is the Historic equivalent of the Frankston Focus and has been identified with the Hasinai tribe of the Post-Contact Period. Glendora Focus, the other Historic complex, is though to have developed out of the Texarkana-Bossier-Belcher-McCurtain-Mid-Ouachita bloc.

LOWER MISSISSIPPI INTRUSIONS

In the eastern part of the Caddoan Area—extreme eastern Texas, southwestern Arkansas, western Louisiana, and eastern Oklahoma—are occasionally found archeological remains of cultures whose distribution is centered in the Lower Mississippi Valley. Some of the remains are possibly intrusive in Caddoan sites as trade material, while others apparently represent sites actually occupied by peoples whose strongest cultural ties lie with the Lower Mississippi Valley. Evidence of the Coles Creek complex is especially abundant in the Caddoan Area as compared to other Lower Mississippi complexes. Some indications of Marksville and Troyville occupation are present, however, as well as a possibility of a Tchefuncte-like intrusion on an earlier level.

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*AUTHOR'S NOTE. Suhm et al. (1954) include Fort Coffee and Turkey Bluff in the Fulton Aspect, but not Wylie Focus.

OUTSTANDING PROBLEMS

A number of unsolved problems confront workers in the area of Caddoan prehistory. Some of the most urgent of those problems will be discussed briefly in terms of two broad categories: (1) Those concerned with intra-area relationships between cultural units, and (2) those regarding relationships between Caddoan Area peoples and peoples of other areas.

Of prime importance is the need for exploration and definition of Paleo-American and Archaic complexes in the Caddoan Area. Paleo-American complexes have been particularly ignored in the past, but the desirability of intensive search for sites of that stage is obvious in view of the consistency with which Paleo-American projectile points occur in local collections.

Knowledge of the Archaic is somewhat more advanced than that of the Paleo-American, but typological, distributional, and associational studies of Archaic artifacts are needed. Particularly germane to a clear picture of Caddoan Area prehistory are determination of Archaic affiliations with related complexes in surrounding areas and relationships with local Neo-American complexes, some of which may have developed out of the Archaic.

Most field research and interpretative analysis have been devoted to the Neo-American Stage, with the result that many intricate problems related thereto have arisen. With regard to intra-area questions, there is an urgent need for clarification of relationships between the various foci. Krieger's recognition of two aspects, the earlier Gibson and the later Fulton, is based on substantial archeological data. The several foci of the two aspects likewise have solid foundations of concrete data. However, intricate interrelationships exist between the aspects and foci, one to another, thereby posing numerous problems.

Positive relationships between foci, for example, are indicated in both aspects by sharing of ceramic and lithic artifact types. The type-sharing—an extremely complex network cross-cutting the different foci in almost as many directions as there are types—presents a complicated situation that apparently reflects not only simple contact between local groups, but also geographical and temporal factors. Each focus, as defined, has a more or less definite areal distribution, but each of its characteristic artifact types usually has its own peculiar distribution pattern which does not necessarily coincide with the distribution pattern of the focus. Nor do the distribution patterns of the various types correspond to one another in most cases. In addition, there are a number of decorative motifs that occur in more than one ceramic type. These are frequently modified from type to type by variations in execution. Distribution patterns of the motifs cross-cut the distribution patterns of the types and foci in various directions, making for still greater complexity. Thus there is a crazy patchwork of distribution patterns of artifact types, motifs, and foci, which overlap each other in many directions, yet maintain enough consistency so that clusters of types, at certain points, can be definitely recognized as significant complexes.

The greatest problem of the moment, with regard to intra-area relationships, is to trace the threads of continuity presented by artifact types, motifs, and complexes of associated types, and, when the character, direction, and dimensions of the various threads have been determined and can be viewed with more clarity than at present, to study their relationships, one to another, and seek any interpretative conclusions to which they may lead. Such a detailed study may be expected to produce more accurate definition of the foci, clarify their chronological positions, and shed light on their relationships with each other.

Relationships between Neo-American complexes in the Caddoan Area and complexes of other areas have received much attention. Broad similarities in basic culture and in artifact typology, especially in ceramics, have been noted between Caddoan Neo-American material and archeological complexes of the Lower Mississippi Valley (Ford, 1952). Certain parallels between Caddoan and Southwestern United States archeological complexes have also been noted (Krieger, 1946), particularly with respect to certain vessel shapes and decorative techniques.

Krieger (Newell and Krieger, 1949) has suggested the possibility that the Gibson Aspect may have arisen as a result of stimuli diffused more or less precipitously from Mesoamerica. Ford (1952) offers an alternative hypothesis: that the entire Caddoan sequence is an outgrowth of the Lower Mississippi tradition, which, in turn, may have its roots in Mesoamerica.

With respect to the Lower Mississippi chronology, the relative date of Gibson Aspect's appearance is uncertain, to say the least. Perhaps it should be alined with Marksville as suggested by Krieger (Newell and Krieger, 1949, pp. 223–224), with Coles Creek as suggested by Griffin and Phillips (Phillips, Ford, and Griffin, 1951, p. 455, footnote), or with Plaquemine as suggested by Ford (ibid.). Both Gibson Aspect and Lower Mississippi components are present in some quantity in southwestern Arkansas, and it appears to the writer that the best opportunities for making a positive alinement between the two areas lie in the sites of that region.

Relationships between the Fulton Aspect and the Lower Mississippi Area appear to have been somewhat more intimate than in the case of Gibson Aspect. Ceramics of the two areas, at any rate, appear to have converged more toward a common mean rather than remaining in the mutually distinct relationship existing at the Gibson Aspect level. Too, such innovations as the promiscuous use of shell particles in tempering pottery swept across both areas during Fulton Aspect times, again suggesting a tendency toward convergence of the two separate streams of ceramic evolution.

Principal inter-area problems of the moment, then, are concerned with possible alien sources for the Gibson Aspect, chronological alinement with the Lower Mississippi sequence, and the nature of relationships with neighboring cultures on all sides.

THE KNIGHT'S BLUFF SITE (41-20D5-8)

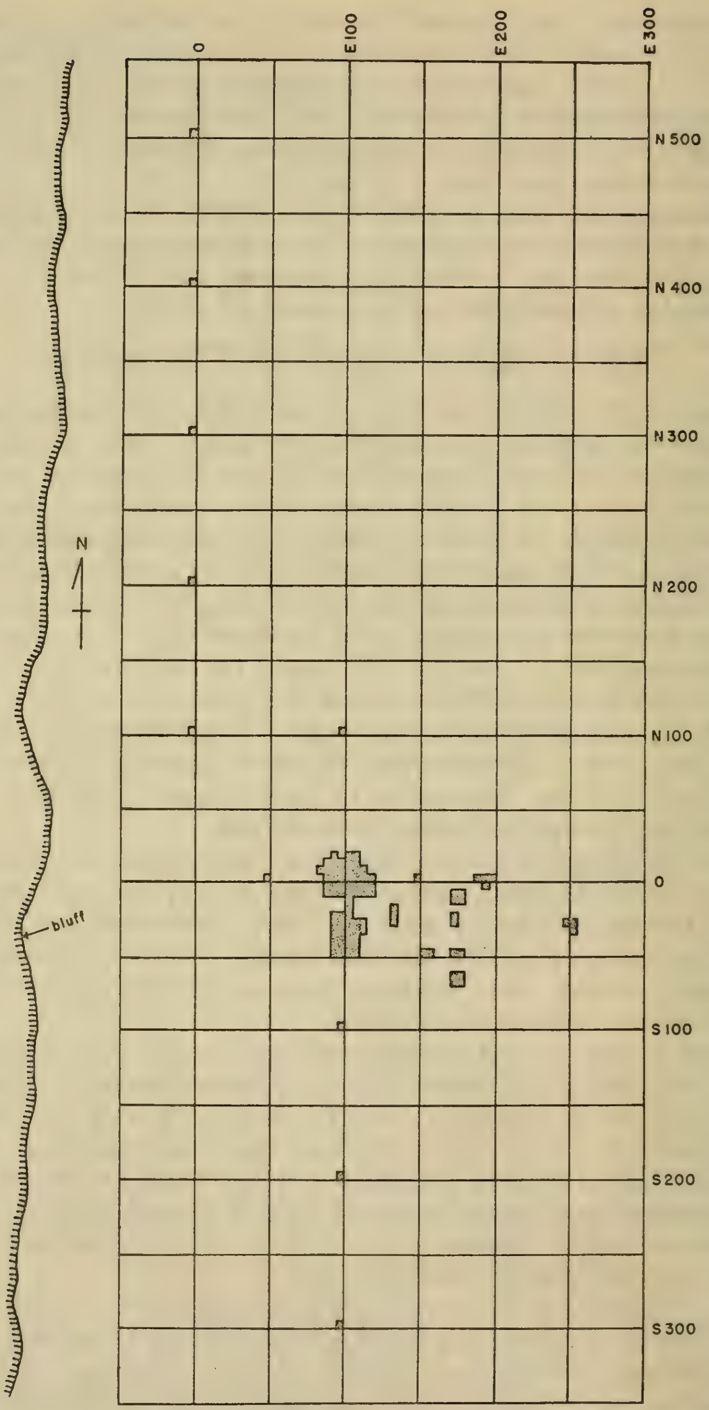
The Knight's Bluff Site is situated on a high bluff overlooking the Sulphur River from the south, some 6 air-line miles northeast of Douglassville in Cass County, Tex. Springs at the foot of the bluff provide a supply of excellent drinking water ample for the needs of dozens of people. Because the Sulphur is easily fordable at a spot beneath the bluff, one of the pioneer roads traversing Cass County in a northwest-southeast direction runs along the top of the bluff, winds down the steep slope at its northern edge, then crosses the Sulphur at the ford and continues toward the northwest.

The face of the bluff runs almost due north and south, the bluff being approximately 100 feet in height. A low terrace 20 to 40 feet wide and some 15 feet above the water level separates the bluff from the Sulphur River. The surface of the site slopes gently from south to north, with a slight inclination to the east.

The archeological remains occupy an area which was cleared of timber during the latter half of the 19th century and was cultivated more or less continuously until the 1930's. Since then the old field has been used as a pasture. Surface indications of Indian occupation include potsherds, stone artifacts, bone scraps, flint chips, flecks of charcoal, and a few mussel shells.

Well known to local amateur archeologists and pot hunters, the Knight's Bluff Site has been subjected to intensive surface collecting for many years. Artifacts from Knight's Bluff were observed by the writer in several local collections, the largest and most representative series being in possession of Bogie Price, of Atlanta, Tex. His excavation of a shallow burial exposed by plowing in the early 1930's is the only digging reported at the site prior to the salvage operations of the River Basin Surveys.

On September 25, 1949, during a preliminary archeological reconnaissance of the Texarkana Reservoir area for the River Basin Surveys, Robert L. Stephenson visited the Knight's Bluff Site with Bogie Price and M. P. Miroir, an amateur archeologist of Texarkana.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bluff

Figure 2.—Sketch map of Knight's Bluff Site, showing grid reference system. Excavated areas are denoted by stippling.

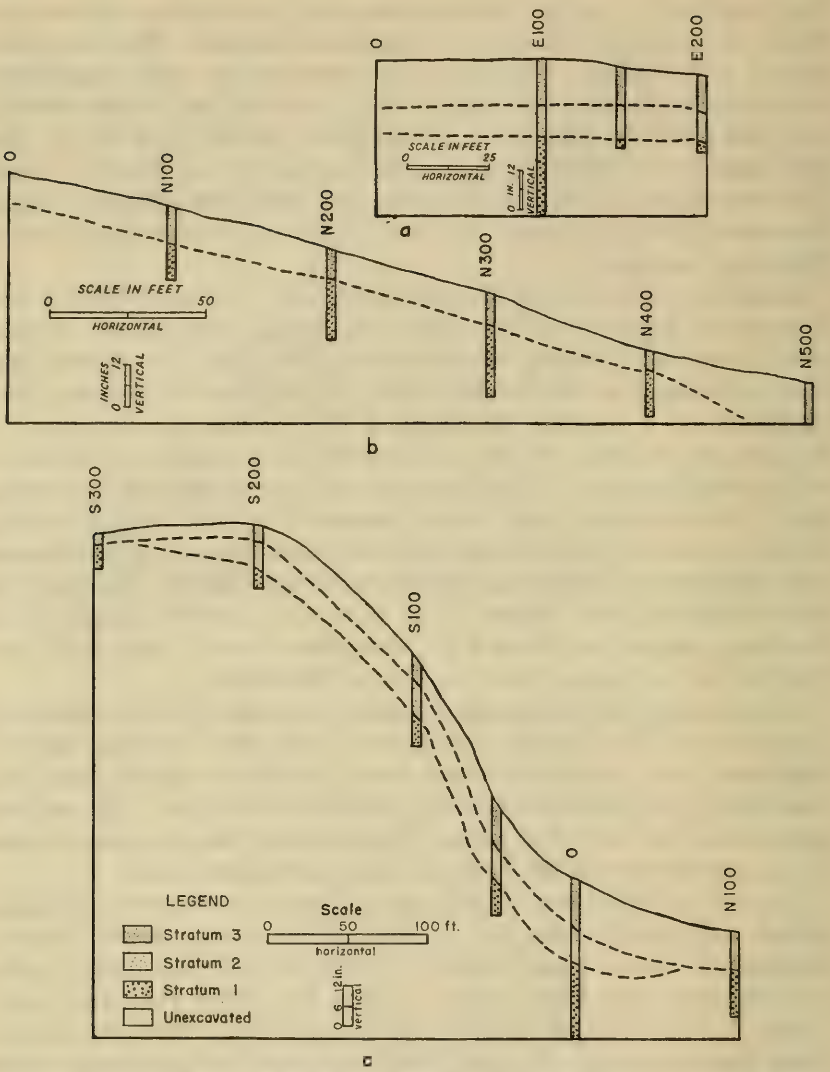
They collected a number of artifacts from the surface and sank a small test pit in a midden near the edge of the bluff. Results of the testing and surface collecting were encouraging, and Stephenson recommended in his official report on the survey that one excavation unit ($26,000) be allotted to investigation of Knight's Bluff. No such sum was appropriated, but excavation of the Knight's Bluff Site was begun on April 28, 1952, and continued until May 26. Prior to excavation a grid reference system (fig. 2) was superimposed in the following manner:

A datum point was established at arbitrary elevation 10 feet, and a magnetic north-south line was run through that point. Stakes were placed at 100-foot intervals along the line. A second line, similarly staked at 100-foot intervals, was projected to the east from datum, and a third line was imposed 100 feet east of—and parallel to—the first north-south line. This resulted in a series of reference stakes 100 feet apart. In all portions of the site actually excavated, the 100-foot squares were further broken down into 5-foot squares. With the stake at its southeast corner as reference, each 5-foot square was assigned a designation derived from the distance (in feet) of its coordinates from datum. For example, a 5-foot square whose southeast corner was formed by coordinate lines 50 feet south and 100 feet east of datum would be labeled S50–E100.

In excavating the 5-foot squares, each was taken down by arbitrary 6-inch levels, the digging being done with small trowels, and all specimens from each 6-inch level were put into a separate sack that was sealed and labeled according to square and level. The surface elevation at the southeast corner of each square was used as reference in measuring the 6-inch levels of that particular square.

In order to determine which parts of the site were most promising, 5-foot test squares were dug at each 100-foot stake on the line extending due north from datum and at the two 100-foot stakes on the line running east from datum. Along line E100 (i.e., the north-south line passing 100 feet east of datum) six similar test squares were also excavated. As a result of these tests it soon became evident that cultural material decreased in quantity down the slope to the north of datum, and a similar decrease was noted, beginning about 50 feet south of datum, in the test squares leading up the slope of the hill to the south. The greatest concentration of cultural material, including 10 burials and 1 house pattern, was found in an area from 50 to 200 feet east of datum in the 100-foot strip lying between lines N50 and S50.

Three geological strata (fig. 3) were present over most of the Knight's Bluff Site: Stratum 1, a reddish-clay member lying 6 to 32 inches below the surface and extending to unknown depth;


a
0
E100
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SCALE IN FEET
0 25
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b
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N400
N500
SCALE IN FEET
0 50
HORIZONTAL
0 INCHES 12
VERTICAL
c
S300
S200
S100
0
N100
LEGEND
Stratum 3
Stratum 2
Stratum 1
Unexcavated
Scale
0 50 100 ft.
horizontal
0 6 12 in.
vertical

Figure 3.—Profiles, Knight's Bluff Site. *a*, East-west profile at line 0; *b*, north-south profile at line 0; *c*, north-south profile at line E100.

stratum 2, a clean yellowish-brown sand up to 12 inches in thickness, overlying stratum 1 between grid lines N100 and S300; and stratum 3, the surface member of light- to dark-gray sand which blanketed the entire area.

Stratum 1 was sterile of cultural material except for the upper 3 or 4 inches, where a few chipped stone implements and flint chips representing a preceramic occupation of the site were found. Similar lithic material continued throughout strata 2 and 3, but ceramics occurred only in stratum 3 and the upper part of stratum 2.

Stratum 2 was absent north of grid line N100 and south of line S300. It was confined to the 400-foot interval between those two lines, apparently pinching out at its margins.

FEATURES

A portion of one house pattern (fig. 4) was found about 100 feet southeast of datum. Fifteen post molds, 5 to 7 inches in diameter and 19 to 26 inches apart, formed an arc of approximately 110 degrees on a radius of 13 feet. The molds mark the position of post-

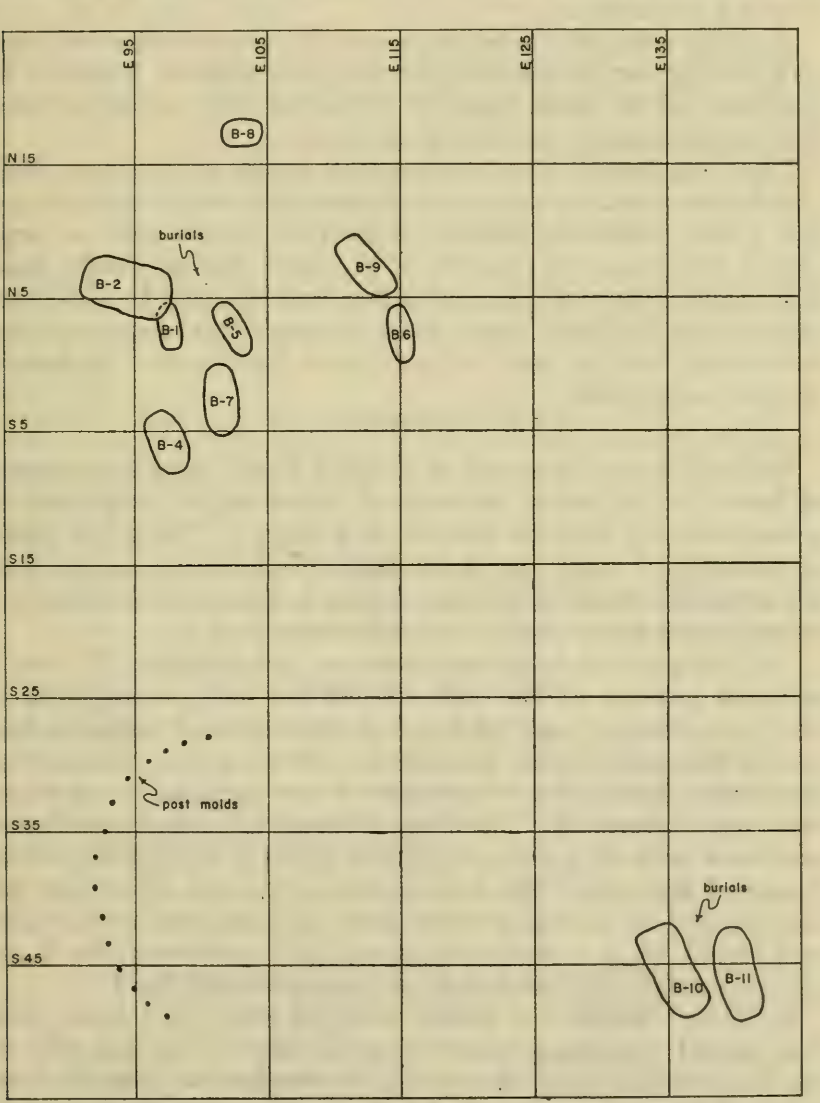
E 95
E 105
E 115
E 125
E 135
B-8
N 15
burials
B-9
B-2
N 5
B-1
B-5
B 6
B-7
S 5
B-4
S 15
S 25
post molds
S 35
burials
S 45
B-10
B-11

FIGURE 4.—Sketch map of portion of Knight's Bluff Site, showing position of the burials and the post molds.

holes that had apparently been dug through stratum 2 into stratum 1. In stratum 1 the molds were clearly distinguishable as yellowish-brown areas that were much softer than the compact clay into which they extended. The molds could not be detected in stratum 2, however, although they undoubtedly had been dug through that member. At the middle of the arc the molds extended 10 to 11 inches into stratum 1, then gradually decreased in depth in both directions. The hypothetical molds required to complete the eastern two-thirds of the house pattern were evidently confined entirely to stratum 2 where they did not show up.

A circular-shaped midden area, up to 14 inches thick at the center and lensing out at the margins, lay over stratum 2 within the perimeter of the house pattern. It undoubtedly represents debris that accumulated on the floor of the house.

Little can be said about construction details of the house except that it was circular in shape, approximately 26 feet in diameter, and had a wall framework basically formed of upright poles no larger than 5 to 7 inches in diameter at the base. Conspicuously absent were traces of the wattle-impressed daub so frequently found at house sites in the Caddoan Area, which suggests that wattle-and-daub construction was not used in the Knight's Bluff house. No interior features were found.

BURIALS

Ten burials were excavated at Knight's Bluff. With the exception of burial No. 1, which was only 12 inches below the surface, all graves were dug into the red clay of stratum 1. The grave outline of burial No. 1 could not be detected; in all other cases the grave fill contained reddish clay from stratum 1, and grave outlines could be easily seen where they cut through strata 2 and 3.

The burials were fairly consistent in some respects; all were in extended position on the back, all but one were accompanied by mortuary offerings, and all but two were oriented with the head toward the south or east or somewhere between those two cardinal directions. Burial No. 2 consisted of two individuals; all others were single interments. Mortuary offerings of pottery vessels were associated with all burials except Nos. 1 and 8 which were entirely devoid of furniture. The only mortuary furniture other than pottery vessels were a large stemmed knife or spear point of novaculite with burial No. 5, a perforated mussel shell with burial No. 7, and part of a small shell pendant at the neck of burial No. 7.

Individual burials are briefly described below in tabular form. The cranial measurements and physical observations, not only for the Knight's Bluff skeletal material but also for that from the Sherwin and Snipes Sites described later in this report, were made by Miss Dee Ann Suhm.

BURIAL No. 1:

Location: Square NO–E100.

Grave dimensions: Indeterminate.

Type of burial: Extended, on back, with hands over face.

Orientation: Head to south.

Dimensions of skeleton: Maximum length, 44 inches; maximum width, 10 inches; thickness, 6 inches.

Completeness: Feet and mandible missing.

Preservation: Fair.

Associations: None.

Physical observations and measurements:

Sex: Indeterminate.

Age: Adolescent.

Cranial measurements: Maximum length, 174 mm.; maximum width, 131 mm.; index, 75.2 (mesocranic); minimum frontal diameter, 95 mm.

General observations: Occipital flattening; a shallow depression about 40 mm. wide in the post-coronal area parallel to coronal suture; frontal eminences only slightly developed; directly above each frontal eminence is a small depressed area; skull is twisted, probably as a result of warping after interment.

Remarks: Burial No. 1 is atypical in that the grave is comparatively shallow and there are no mortuary offerings of nonperishable materials. The missing feet were severed during the digging of a later grave (burial No. 2).

BURIAL No. 2:

Location: Squares NO–E95, NO–E100, N5–E95, and N5–E100.

Grave dimensions: Maximum length, 90 inches; maximum width, 55 inches; depth, 46 inches.

Type of burial: Contained two individuals, both extended on the back, with arms at sides.

Orientation: Heads to southeast.

Dimensions of skeletons: Skeleton No. 1 (on left side of grave)—maximum length, 72 inches; maximum width, 23 inches; thickness, 8 inches. Skeleton No. 2—maximum length, 70 inches; maximum width, 21 inches; thickness, 8 inches.

Completeness: Vestiges of most major bones present.

Preservation: Fair.

Associations: Two small jars of type Nash Neck Banded (pl. 1, *b*, *c*) 6 inches southwest of skull of skeleton No. 1; small bottle of type Haley Engraved (pl. 1, *a*) between skulls; small engraved bottle of type Antioch Engraved (pl. 1, *d*) at right knee of skeleton No. 1.

Physical observations and measurements:

Sex: Skeleton No. 1, male; skeleton No. 2, female.

Age: Skeleton No. 1, 50 to 55 years; skeleton No. 2, about 40 years.

Cranial measurements, skeleton No. 1: Skull too warped for accurate measurements.

Cranial measurements, skeleton No. 2: Maximum length, 176 mm.; maximum width, 121 mm.; index, 68.7 (dolichocranic); minimum frontal diameter, 86 mm.

General observations, skeleton No. 1: Skull drastically warped, probably after interment; marked artificial deformation of fronto-occipital area; forward portion of jaw small and narrow; jaw has a marked flare at the ramus; small, deeply depressed area just above inion may be the result of an injury.

BURIAL No. 2—Continued

General observations, skeleton No. 2: Intentional fronto-occipital flattening; post-coronal region is depressed, probably a result of cranial deformation.

Remarks: Only burial containing more than one individual. Skeleton No. 2 has the only long-headed skull in the Knight's Bluff series.

BURIAL No. 3:

Due to an error in cataloging, no burial was assigned the number *3*.

BURIAL No. 4:

Location: Squares S5–E100 and S10–E100.

Grave dimensions: Maximum length, 65 inches; maximum width, 26 inches; depth, 45 inches.

Type of burial: Extended, on back.

Orientation: Head to southeast.

Dimensions of skeleton: Not recorded.

Completeness: All major bones present.

Preservation: Good.

Associations: Large incised-appliqued jar, type Pease Brushed-Incised (pl. 1, *e*); medium-sized, brushed bowl (pl. 1, *g*); small engraved bottle, type Antioch Engraved (pl. 1, *f*); all three vessels to right of head and shoulder.

Physical observations and measurements (see pl. 16, a, b):

Sex: Female.

Age: About 20 years.

Cranial measurements: Maximum length, 171 mm.; maximum width, 135 mm.; index, 78.9 (mesocranic); minimum frontal diameter, 94 mm.; basion-bregma height, 141 m.: mean height index, 92.1 (high); nasal index, 37.7 (leptorrhinic); bigonial diameter, 97 mm.

General observations: Fronto-occipital deformation; post-coronal depression; teeth very crowded; canines erupting laterally above first and third molars; slight alveolar prognathism.

BURIAL No. 5:

Location: Square NO–E105.

Grave dimensions: Maximum length, 69 inches; maximum width, 22 inches; depth, 27 inches.

Type of burial: Extended, on back, arms at sides.

Orientation: Head to south-southeast.

Dimensions of skeleton: Maximum length, 58 inches; maximum width, 19 inches; thickness, 9 inches.

Completeness: Most major bones present.

Preservation: Fair.

Associations: Small incised-appliqued jar, type Pease Brushed-Incised (pl. 2, *a*) immediately behind skull; novaculite knife or spear point (pl. 12, *d*) at left hip near hand.*

Physical observations and measurements (see pl. 16, c, d):

Sex: Male.

Age: About 45 years.

Cranial measurements: Maximum length, 177 mm.; maximum width, 147 mm.; index 83.1 (brachycranic); minimum frontal diameter, 94 mm.; mean height index, 86.8 (high); nasal index, 52 (platyrhinic); bigonial diameter, 104 mm.

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*AUTHOR'S NOTE. This is a Pogo-type spear point as defined by Suhm et al. (1954, p. 398, pl. 78).

General observations: Fronto-occipital deformation (but no post-coronal depression); top of skull somewhat keel-shaped; very pronounced supraorbital ridges; malars very flaring; slight alveolor prognathism; skull generally massive.

Remarks: Only burial with chipped stone furniture.

BURIAL No. 6:

Location: Squares NO–E115 and NO–E120.

Grave dimensions: Maximum length, 56 inches; maximum width, 19 inches; thickness, 6 inches.

Type of burial: Extended, on back, right arm at side, left forearm across body at right angle to spine.

Orientation: Head to north.

Dimensions of skeleton: Maximum length, 56 inches; maximum width, 19 inches; thickness, 6 inches.

Completeness: Portions of most major bones present.

Preservation: Skull in fair condition; other bones in advanced stages of decomposition.

Associations: Base of pottery bottle resting on skull.

Physical observations and measurements (see pl. 16, e, f):

Sex: Probably female.

Age: Adolescent.

Cranial measurements: Maximum length, 154 mm.; maximum width, 145 mm.; index 94.1 (hyperbrachycranic); minimum frontal diameter, 93 mm.; mean height index, 91.9 (high); nasal index, 45.9 (leptorrhinic).

General observations: Pronounced fronto-occipital deformation (but no post-coronal depression); numerous Wormian bones along the lambdoid suture and the oval-shaped ear opening are possibly a result of deformation.

BURIAL No. 7:

Location: Square S5–E105.

Grave dimensions: Maximum length, 75 inches; maximum width, 29 inches; depth, 37 inches.

Type of burial: Extended, on back, arms at sides.

Orientation: Head to south-southeast.

Dimensions of skeleton: Maximum length, 57 inches; maximum width, 25 inches; thickness, 5 inches.

Completeness: Most of cranium missing; portions of most long bones present.

Preservation: Poor.

Associations: Small engraved bottle, type Antioch Engraved (pl. 2, *c*), at left shoulder; small engraved carinated bowl (type Friendship Engraved) at left side 8 inches below shoulder (pl. 2, *b*); perforated mussel shell at left wrist; small mussel-shell pendant in neck region.

Physical observations and measurements: Adolescent. Measurements and other observations indeterminate.

BURIAL No. 8:

Location: Square N15–E105.

Grave dimensions: Maximum length, 36 inches; maximum width, 24 inches; depth, 25 inches.

Type of burial: Extended, on back, arms at sides.

Orientation: Head to east.

Dimensions of skeleton: Maximum length, 22 inches; maximum width, 9 inches; thickness, 5 inches.

Burial No. 8—Continued

Completeness: Portions of most major bones present; hand and foot bones missing.

Preservation: Poor.

Associations: One unworked mussel shell in contact with top of skull (may not be an intentional inclusion).

Physical observations and measurements: Infant. Measurements and other observations indeterminate.

Burial No. 9:

Location: Square N5–E115.

Grave dimensions: Maximum length, 69 inches; maximum width, 24 inches; depth, 30 inches.

Type of burial: Extended, on back, arms at sides.

Orientation: Head to southeast.

Dimensions of skeleton: Maximum length, 65 inches; maximum width, 23 inches; thickness, 6 inches.

Completeness: Foot and left hand bones missing; most other bones present.

Preservation: Good.

Associations: Engraved bottle, type Haley Engraved (pl. 2, *d*), at right shoulder; large, incised-appliqued jar, type Pease Brushed-Incised (pl. 2, *e*), at right hip resting on right hand.

Physical observations and measurements (see pl. 17, a, b):

Sex: Probably female.

Age: About 50 years.

Cranial measurements: Maximum length, 180 mm.; maximum width, 138 mm.; index, 76.6 (mesocranic); minimum frontal diameter, 95 mm.; mean height index, 88 (high); nasal index, 49 (mesorhinic); bigonial diameter, 95 mm.

General observations: Fronto-occipital region not deformed; a slight flattening of the parietal is probably due to post-mortem warping; depressed area around inion; occipital bisected laterally by several sutures (Inca bones); marked alveolar prognathism.

Burial No. 10:

Location: Squares S45–E135, S45–E140, S50–E135, and S50–E140.

Grave dimensions: Maximum length, 100 inches; maximum width, 46 inches; depth, 60 inches.

Type of burial: Extended, on back, arms at sides.

Orientation: Head to southeast.

Dimensions of skeleton: Maximum length, 68 inches; maximum width, 15 inches; depth, 6 inches.

Completeness: Almost 100 percent.

Preservation: Good.

Associations: Engraved bottle, variant of type Haley Engraved? (pl. 2, *f*), at corner of grave above left shoulder; medium-sized, incised-appliqued jar, type Pease Brushed-Incised (pl. 2, *g*), at edge of grave about a foot from left hip.

Physical observations and measurements:

Sex: Male.

Age: 45 to 50 years.

Cranial measurements: Skull too warped for accurate measurement.

General observations: Pronounced fronto-occipital deformation; post-coronal depression; pronounced supraorbital ridges; skull thin; advanced caries in second molars, lower jaw.

BURIAL No. 11:

Location: Squares S45–E140, S45–E145, S50–E140, and S50–E145.

Grave dimensions: Maximum length, 72 inches; maximum width, 30 inches; depth, 48 inches.

Type of burial: Extended, on back.

Orientation: Head to northwest.

Dimensions of skeleton: Not recorded because of lack of preservation.

Completeness: Skull and long bone parts present; most other bones completely decomposed.

Preservation: Poor.

Associations: Engraved bottle, possibly a variant of type Haley Engraved (pl. 3, *b*); brushed-incised jar, type Pease Brushed-Incised (pl. 3, *a*); engraved bowl, unidentified type (pl. 3, *c*).

Physical observations and measurements:

Sex: Probably female.

Age: 16 to 18 years.

Cranial measurements: Maximum length, 175 mm.; maximum width, 140 mm.; index, 80 (brachycranic); minimum frontal diameter, 90 mm.; bigonial diameter, 95 mm.

General observations: No artificial deformation; supraorbital ridges moderately pronounced; depression above each orbit in region of frontal eminences; slight sagittal ridge, depressed on either side at the sagittal suture; advanced caries in upper second molar.

THE ARTIFACTS

The artifacts recovered from the Knight's Bluff Site, most of them potsherds, totaled 6,564. For purposes of associational analysis, 20 individual 5-foot squares and blocks of squares were arbitrarily designated as associational units, and the artifacts from each unit were laid out on tables by depth and strata. There was absolutely no significant indication of typological stratification in the units except that several dart points occurred in the uppermost few inches of stratum 1 (the compact clay member underlying the two uppermost strata of sand) where no pottery was found. A light occupation at that level is indicated by the presence of flint chips in addition to the dart points. The dart points include types Gary and Ellis, indistinguishable from specimens of the same types in the overlying, pottery-bearing zone.

Of possible bearing on the lack of stratification of pottery types is the intricate maze of rodent holes that laced strata 2 and 3, the soft, sandy, uppermost strata. Little evidence of rodent activity was observed in stratum 1, probably because the clay was extremely hard and compact. Also, few rodent holes were encountered in the compact midden material of the house floor.

The house-floor midden can certainly be considered an excellent associational unit; that is, the artifacts occurring therein can be assumed, with little possibility of error, to be material discarded by the occupants of the house and consequently to have been used by one small group of people during a relatively short period of time.

Since the artifacts from the house floor are comparable to those from the rest of the site as a whole, it appears that the bulk of the artifacts from the entire site can be tentatively assigned to occupation by one small village of people over a period of perhaps 10 to 50 years. Some adulteration from a light preceramic occupation is to be expected, and there is the possibility that the site may have accumulated a few artifacts from campers either prior to and/or subsequent to the existence of the village.

CERAMICS

Most of the pottery types have been previously described, but five important types first recognized by Krieger (1946) have not been described in detail.* One type, Pease Brushed-Incised, previously described by Webb (1948, pp. 110-113), occurred in quantity at Knight's Bluff, but with variations not precisely compatible with Webb's definition. Consequently, before taking up a discussion of the relationships between types within the site, Krieger's five types (Barkman Engraved, Simms Engraved, Nash Neck Banded, McKinney Plain, and Cass Appliqued) and Pease Brushed-Incised will be described individually, the Pease description being slightly expanded beyond Webb's original definition.

Barkman Engraved

PASTE:

Method of manufacture: Coiled.

Temper: Clay grit, rarely with very tiny white particles which seem to be pulverized shell or bone.

Texture: Granular, with tiny grains. Well fired, homogeneous, and hard. Sherds tend to shatter rather than crumble.

Color: Core is black or dark gray. Exterior surface is usually dark gray or black, but some specimens range into light shades of orange and buff. Interior surfaces exhibit the same color variations as the exterior, but may be light in shade when the exterior is dark, or dark when the exterior is light. Mottling due to uneven firing is common.

Surface finish: Well smoothed on both interior and exterior. Exterior is frequently polished.

FORM:

Wall thickness: Average about 5 mm., with extreme range of 3 to 8 mm.

Lip: Usually sharply convex and rolled outward slightly.

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*AUTHOR'S NOTE. All of these types, as well as type Haley Engraved described later, have now been described in detail by Suhm et al.; therefore the present descriptions are largely repetitious. There are some differences in detail, though, between the present descriptions and those of the Handbook of Texas Archeology; in one case, in fact, there is enough difference so that two particular vessels herein identified as type Haley Engraved (pls. 1, *a*; 5, *i*) are illustrated in the Handbook (pl. 65, P, Q) as examples of Taylor Engraved. To have followed the Texas Handbook typology would have required reanalysis of all the artifacts, a procedure that was not feasible after the paper had been set in type. The artifacts from the Texarkana sites were analyzed on the basis of the type descriptions given here, not on those of the Handbook of Texas Archeology.

Base: Usually disk shaped, sometimes convex and rounded.

Vessel shape and size: Occurs only as carinated bowls, with vertical or inwardly inclined rims ranging in height from 5 to 7 cm. There is a sharp shoulder just below the rim. Below the shoulder the body walls taper to the base, which is usually a small disk. Outline shape is angular, and vessel height is 10 to 20 cm.

DECORATION:

Treatment: Engraving.

Design: Decoration is confined to the rim. There are usually two or three parallel, horizontal lines just below the lip, under which lie the principal designs of engraved bands and lines arranged in rectilinear and overlapping step patterns. The bands consist of parallel lines, the spaces between them filled in with hatching, crosshatching, or lines of engraved punctates. Ticked and spurred lines are common. Lines are often filled with white pigment, but red pigment is absent or extremely rare.

CULTURAL AFFILIATIONS: Indigenous type of Texarkana Focus; does not seem to have survived into the Historic Glendora Focus nor to be present as a resident type in any other focus with the possible exception of Belcher Focus.

DISTRIBUTION:

Geographical: Small area in northeastern Texas and adjacent corners of Louisiana and Arkansas. Apparently absent in Oklahoma.

Temporal: Estimated, A.D. 1200–1600.

REMARKS:

Very similar in design and execution to Taylor Engraved of the Belcher Focus, and Friendship Engraved of the Mid-Ouachita Focus. Taylor differs from Barkman in having the decorations divided into four separate panels whereas Barkman has a continuous design around the rim. Also, Taylor seldom, if ever, has a disk-shaped base. Friendship bowls generally have more hachured area than Barkman and tend more toward curvilinear designs and emphasis of negative elements. Despite these differences, the similarity between Barkman, Taylor, and Friendship is striking.

Barkman bears close resemblances also to types Simms Engraved (Texarkana and Glendora Foci) and Belcher Engraved (Belcher Focus) in paste and decorative techniques. Certain design motifs are almost identical in the three types, differentiation being based primarily on vessel shape and differences in distribution.

BIBLIOGRAPHY: Krieger, 1946, p. 230, and fig. 18.

Simms Engraved

PASTE: Same as for Barkman Engraved, except that red filming and shell tempering occur occasionally.

FORM:

Wall thickness: 4 to 7 mm.

Lip: Sharply convex.

Base: Convex or disk shaped.

Vessel shape and size: Occurs only as carinated bowls. Rims are very narrow and turn inward at unusually sharp angles, with many curving outward again just below the lip. Below the rim, the walls may curve evenly across the bottom to form a convex base, or curve gently to a flat, disk-shaped base. Most specimens are 6 to 10 cm. high, but one extreme example measured 21 cm. Oral diameter is generally greater than vessel height.

Decoration:

Treatment: Engraving.

Design: Decoration is confined to the rim, and consists largely of long, narrow, rectangular patterns featuring plain lines, ticked lines, and rows of engraved "dashes." Lines may be filled with either red or white pigment.

Cultural affiliations: Indigenous type of Texarkana and Glendora Foci, but absent, or extremely rare, in earlier Texarkana Focus components. May be affiliated also with McCurtain and Belcher Foci.

Distribution:

Geographical: Northeastern Texas, northwestern Louisiana, and southeastern Oklahoma. May extend slightly into Arkansas.

Temporal: Estimated, A.D. 1400–1700.

Remarks: Closely related typologically to Belcher Engraved (Belcher Focus), Taylor Engraved (Belcher Focus), and Barkman Engraved (Texarkana Focus).

Bibliography: Krieger, 1946, p. 230, and fig. 18.

Cass Appliqued

Paste:

Method of manufacture: Coiled.

Temper: Clay; occasionally with small amounts of tiny to medium-sized particles of shell and/or bone.

Texture: Homogeneous, medium hard, usually well fired.

Color: Surface colors are mostly light oranges, creams and grays, with some mottling due to uneven firing. Core color is generally the same as surface color.

Surface finish: Well smoothed on the interior. Exterior surface also smoothed, with edges of the applique ridges blended evenly with the surface. Tool marks visible, especially where edges of applique strips were smoothed into the surface.

Form:

Wall thickness: Average 6 or 7 mm., range 4 to 9 mm. (measurements taken from peak of ridges to vessel interior).

Lip: Convex.

Base: Disk shaped.

Vessel shape and size: Jars only have been noted. Bodies are globular in shape; rims are slightly everted. Vessels are 10 to 20 cm. tall. Oral diameters are approximately equal to vessel height.

Decoration:

Treatment: Appliqueing and punctating.

Design: Thin, closely spaced applique strips, 3 to 5 mm. in width, are arranged in groups or sets, each set consisting of 2 to 10 parallel strips. The sets are diagonally opposed to each other, so that the ends of the strips in one set terminate at a sharp angle against the outermost strip in the adjoining set. There are usually 10 to 15 sets which cover the entire body of the vessel from base to neck. On the rim are 2 or 3 horizontal bands of closely spaced punctuates made with a blunt-ended implement.

Cultural affiliations: Occurs in components of both the Texarkana and Glendora Foci.

Distribution:

Geographical: Not known in detail, but may be presumed to include the area in which Texarkana and Glendora components occur.

Chronological: Estimated, A.D. 1300–1700.

Remarks: Definition based on very small sample and probably will require future revision.

Bibliography: None.

Nash Neck Banded

Paste:

Method of manufacture: Coiled.

Temper: Clay; approximately 20 percent is shell tempered in collections from northeastern Texas, but the percentage of shell tempering runs much higher in components of the McCurtain Focus in southeastern Oklahoma.

Texture: Medium hard, usually fairly well fired.

Color: Surface colors are buffs, light grays, and dark grays. Smudges of carbonized organic matter are frequent, and mottling of the surface due to uneven firing is common. Core colors tend in general to be darker than surface colors, with dark gray and black predominating.

Surface finish: Interiors are usually well smoothed, exteriors less so.

Form:

Wall thickness: Average 5 to 6 mm., extreme range 3 to 10 mm.

Lip: Flat or convex, usually with four high, evenly spaced, angular peaks (rarely there are five such peaks).

Base: Flat, disk shaped.

Vessel shape and size: Occurs only as jars with globular or ovoid bodies. Necks are relatively broad and curve outward. Strap handles are common, usually placed directly under the peaks on the rim. Nonfunctional handles, with no opening between handle and vessel wall, are not uncommon, and simple nodes occasionally occur, evidently as vestigial representations of handles. Most specimens fall into the height range of from 10 to 25 cm., although miniatures only 5 or 6 cm. high and very large jars up to 50 cm. in height are known. Oral diameters usually are about equal to overall height.

Decoration:

Treatment: Corrugation (produced by pinching the coils together with no subsequent smoothing), fingernail punctating, and appliqueing.

Decoration: Principal decoration is the horizontally corrugated neck. Occasionally there are also horizontal rows of fingernail punctates impressed on the unsmoothed coils. Vertical applique strips or rows of nodes sometimes are present, usually placed directly in line with the rim peaks, if present. They may extend from the rim almost to the base; or be confined to either rim or body. Body decorations include: 2 or 3 rows of closely spaced horizontal fingernail punctates immediately below the neck; 4 or 5 triangles—with apexes down and bases coinciding with the juncture of rim and body—made either with punctates or applique strips and nodes; vertical applique strips in various arrangements.

Cultural affiliations: A principal type of the Texarkana and McCurtain Foci.

Distribution:

Geographical: Northeastern Texas and southeastern Oklahoma.

Temporal: Estimated, A.D. 1200–1500.

Remarks: Appears closely related typologically to La Rue Neck Banded of the Titus Focus.

Bibliography: Krieger, 1946, pp. 238–239 and pl. 35. Bell and Baerreis, 1951, pl. 10.

McKinney Plain

PASTE:

Method of manufacture: Coiled.

Temper: Clay grit.

Texture: Granular, fairly homogeneous, of small- to medium-sized particles. Well fired. Paste is unusually hard, so that sherds tend to shatter rather than crumble.

Color: Light shades of gray and brown, creams, and buffs. Core and interior surface frequently same color as external surface, although core is sometimes darker.

Surface finish: Both exterior and interior poorly smoothed.

FORM:

Wall thickness: 6 to 8 mm. average. Extreme range of 4 to 12 mm.

Lip: Flat or convex.

Base: Disk shaped.

Vessel shape and size: No complete specimens are available for study, but size, as indicated by sherds, is very large, most specimens probably being 25 to 50 cm. high. The body bulges slightly, and contracts a little at the neck. Rims are high and slightly flaring. Occurs mostly (or entirely) in the form of large jars.

DECORATION:

Treatment: Appliqueing, brushing, incising, and roughening.

Design: Four vertical applique strips, 4 to 10 mm. wide, are usually present. They are equally spaced, and may be either confined to the rim or extend from the lip to some point on the body. The strips are commonly flattened or pinched at short intervals. Sometimes vertical rows of elongated nodes replace the continuous strips. The rim is roughened and the body, between the applique strips, may be lightly brushed, covered with parallel incised lines, or left undecorated. Rarely, decoration may be entirely absent.

CULTURAL AFFILIATIONS: Indigenous type of the Texarkana Focus. Occurrence outside of Texarkana Focus components is obscure, due principally, perhaps, to lack of data.

DISTRIBUTION: *Geographical:* Includes Texarkana Focus area and may extend into southeastern Oklahoma, northwestern Louisiana, and southwestern Arkansas.

BIBLIOGRAPHY: Krieger, 1946, fig. 18, *a*, *b*, under Texarkana Focus.

Pease Brushed-Incised

PASTE:

Method of manufacture: Coiled.

Temper: Clay grit, occasionally with a small amount of bone.

Texture: Granular, fairly homogeneous, medium-sized particles. Medium hard; fairly well fired; usually friable.

Color: Surface colors are buffs, light grays, dark grays, and black, often variable due to uneven firing. Core is usually darker than surface.

Surface finish: Interior smoothed; exterior roughened.

FORM:

Wall thickness: Average 5 to 7 mm., extreme range 4 to 10 mm.

Lip: Sharply convex to flat.

Base: Flat and round.

Vessel shape and size: Ovoid jars with slightly out-flaring rims. Rims vary considerably in height. The widest part of the vessel is usually well down the body, and the upper part of the body is constricted toward the neck. Oral diameter is usually less than the maximum diameter of the body. Most specimens are from 12 to 24 cm. high, no extremely large or small examples having been noted.

DECORATION:

Treatment: Appliqueing, punctating, incising, and brushing.

Design: A horizontal band of closely spaced punctates usually encircles the external surface at the lip. There is a similar band of punctates at the juncture of rim and body in most cases. The rim is decorated with heavy, horizontal brushing; or with straight incised lines laid horizontally, diagonally, or vertically; or with rows of closely spaced punctates. The body is divided into panels of apparently random sizes and shapes by either applique strips or rows of closely spaced punctates, or both. The panels are filled in with brushing, parallel incised lines, or parallel dashed lines with the dashes made by a "punch and drag" technique. One of the consistent characteristics of Pease is that the entire external surface, except for the base, is heavily decorated, so that there are no plain areas of sufficient size to stand out in contrast.

CULTURAL AFFILIATIONS: Indigenous type of the Bossier Focus. Present in small quantity at the Hatchel Mound, type site of the Texarkana Focus. Appears closely related to type Haley Complicated Incised of the Haley Focus, but decorations are not so elaborate as for that type. General design and some of the decorative techniques are reminiscent of type Sinner Linear Punctate of the Bossier Focus.

DISTRIBUTION:

Geographical: Includes Belcher and Texarkana Foci areas of northeastern Texas and northwestern Louisiana. Possibly occurs in southeastern Arkansas and southwestern Oklahoma.

Temporal: Estimated, A.D. 1200–1600.

BIBLIOGRAPHY: Webb, 1948, pp. 110–113.

Table 1 (p. 34) includes a list of complete vessels, mostly from the burials, and sherds from general digging. The most common types are Barkman Engraved,[4] Pease Brushed-Incised, McKinney Plain, Nash Neck Banded, Dunkin Incised, late variant, and Baytown-like. The validity of the type Dunkin Incised, late variant, in the present context is subject to an element of doubt. There are no complete Dunkin vessels nor any large sherds that might indicate with accuracy the exact nature of an entire vessel. There are, however, two complete vessels of type Pease Brushed-Incised (pls. 1, *e*, and 2, *a*) that have incised areas almost identical in pattern to Dunkin Incised. There is the possibility, therefore, that some or all of the sherds classified here as Dunkin are actually portions of Pease vessels (see Dunkin sherds, pl. 8, *h*, *i*). Webb (1948, pp. 118–121) in his excellent paper defining the Bossier Focus identifies a number of sherds as Dunkin Incised, late variant. Since Pease is common in the sites investigated by Webb, some of the supposed Dunkin sherds there may also be portions of Pease vessels. Some of them, however, are undoubtedly from Dunkin vessels, since complete vessels of that type were found. For present convenience, the sherds from Knight's Bluff will be referred to as Dunkin Incised, late variant, with the qualification that some, or all, may actually be derived from vessels of type Pease Brushed-Incised.

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[4] Some of the sherds classified here as Barkman Engraved may actually be of the type Taylor Engraved. So far as decoration is concerned, Taylor is distinguished from Barkman mainly by the division of the decorated zone into separate panels; therefore unless a sherd of Taylor is large enough to contain about one-fourth of the decorated area of the vessel, it is impossible in some cases to distinguish it from Barkman. In the absence of complete vessels that can definitely be identified as Taylor, the sherds from the Texarkana sites were all tabulated as Barkman.

A relatively large number of plain sherds (284 including 7 rimsherds) are indistinguishable from the predominant ware at the Snipes Site, designated Baytown-like because of its similarity to type Baytown Plain of the Lower Mississippi Valley. While some of the sherds from Knight's Bluff (pl. 9, *g*, *h*, *k*) that were classified as Baytown-like may actually be portions of Nash Neck Banded vessels (Nash approaches Baytown-like in paste characteristics), several basal sherds exhibit the characteristic Baytown-like thick base with a sharp angle at the exterior juncture of base and vessel wall, and heavy reinforcement of the interior juncture—features not present in Nash Neck Banded. No decorated sherds with incised lips or overhanging incised lines on the rim (such as those of Baytown-like paste at the Snipes Site) were found at Knight's Bluff. However, there are several sherds (pl. 10, *o*) showing parallel, incised lines which are at least suggestive of the type Coles Creek Incised. They are of Baytown-like paste and some of them probably are from the same vessels as some of the Baytown-like body and basal sherds.

Mention should be made of three sherds (pl. 7, *f*), from at least two different vessels, which have all the characteristics of Barkman Engraved carinated bowls including design motif, except that they are incised rather than engraved. It is of interest to note that Moore (1912, fig. 2, p. 553) illustrates a complete carinated bowl, from burial No. 2 at the Haley Site, which is identical to Barkman except that part of the decoration is incised.

In determining which are the resident pottery types of the Knight's Bluff Site, several factors were taken into consideration. First, those types which are most numerous and more or less evenly distributed over the site are considered resident types. They are Barkman Engraved, Pease Brushed-Incised, Nash Neck Banded, McKinney Plain, Dunkin Incised, late variant, and Baytown-like. Types consistently accompanying burials as mortuary offerings are also probably of resident types for the most part, the possibility that some of the Knight's Bluff burials are intrusive seeming remote in view of the similarity in burial customs reflected by all of the 10 burials. Of the types listed above as resident types on the basis of quantitative representation, only Pease and Nash occurred in burials. Other vessels accompanying burials include a small carinated bowl (pl. 2, *b*), found with burial No. 7, which resembles Barkman Engraved in shape, but has an engraved design in which negative elements are emphasized. It probably can best be classified as Friendship Engraved of the Mid-Ouachita Focus.

Two bottle forms found in burials are rather distinctive in style. Data from Knight's Bluff and other sites indicate that both probably merit status as types, but too few data are presently available for detailed description. Consequently, they will be herein assigned type names for convenience in reference, but are considered only tentative types. Descriptions of these two tentative bottle types are given below.

*Haley Engraved.**—Named and first recognized as a probable type by Krieger (oral communication), but has not yet been described in print. A medium-sized bottle of paste resembling that of Barkman Engraved. Body is squat, globular, or ovoid, and the base is flat. Necks are cylindrical or slightly tapering, and frequently flare outward at the lip. Decoration is confined to the body and consists largely of scrolls and circles, the scrolls frequently interlocking. One diagnostic feature of this tentative type is the use of heavily spurred lines, with hachuring in the triangular spur zones. Small spaces left over after the scrolls or circles have been applied are frequently hachured, probably to maintain a tendency to cover the body as completely as possible with designs. Two or three horizontal engraved lines just below the neck and just above the base delineate the decorated area.

Two examples of Haley Engraved (pls. 1, *a;* 2, *d*) were found at Knight's Bluff, one in burial No. 2, the other in burial No. 9. Possibly related to Haley Engraved, but with somewhat divergent design motifs, are two larger bottles (pls. 2, *f;* 3, *b*) found with burials 10 and 11.

Antioch Engraved.—The second of the two tentative bottle types is small in size and careless in execution. The paste is dark and friable, the body ovoid, the base flat, and the neck cylindrical or slightly tapering, with no flare at the lip. Observed specimens frequently have such a drastic list that they appear in danger of toppling at the gentlest breeze. Poor craftmanship is reflected not only in vessel shape but also in the decoration, which consists of grotesque, disorderly patterns of circular, curved, and straight engraved lines. Spurring and ticking do not occur, but there is some crude hachuring.

Burials Nos. 2, 4, and 7 each contained one Antioch Engraved bottle (pls. 1, *d*, *f;* 2, *c*), and general digging uncovered four sherds (pl. 7, *b*).

Principal resident pottery types at the Knight's Bluff Site, then, are Barkman Engraved, Pease Brushed-Incised, Nash Neck Banded, McKinney Plain, Dunkin Incised, late variant, and Baytown-like. Of less frequent occurrence, but also considered as probable resident types, are the two tentative bottle types, Haley Engraved and Antioch Engraved.

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*Author's note. Haley Engraved has now been described in detail by Suhm et al. (1954, p. 284, pl. 26).

Several other recognized pottery types, although poorly represented at Knight's Bluff, might be considered minor resident types because they consistently occur in association with some of the principal resident types at nearby related sites. One group of these consists of types considered indigenous to the Texarkana Focus: Cass Appliqued (24 sherds found at Knight's Bluff), Simms Engraved (7 sherds), Foster Trailed-Incised (6 sherds), Avery Engraved (3 sherds), Hatchel Engraved (2 sherds), Bowie Engraved (1 sherd), and rattle bowls (3 sherds). Two types affiliated with the Belcher Focus, Belcher Ridged (10 sherds), and Belcher Engraved (2 sherds) were found.

The only other types identified are 13 sherds of Pennington Punctated-Incised (an Alto Focus type), 6 sherds of Crockett Curvilinear Incised (a type shared by the Alto and Haley Foci), and one sherd of a tentative bottle type, Higgins Engraved, briefly described in this report on page 61.

Other ceramic artifacts are 16 fragments of pipes (pl. 11, *b*, *e*, *f*, *g*, *i*) and 1 fragment of what appears to have been an earspool (pl. 11, *j*). Fifteen of the pipe fragments are from long-stemmed, thin-walled pipes similar to those pictured by Moore (1912, fig. 53, p. 549) from the Haley Site, by Webb and Dodd (1939, pl. 26) from the Gahagan Site, and by Newell and Krieger (1949, fig. 53, p. 149) from the Davis Site. The other pipe fragment (pl. 11, *i*) is apparently from one of the thick-walled elbow pipes typical of many Fulton Aspect components.

CHIPPED STONE

Dart points (pl. 11).—A total of 54 dart points was found at Knight's Bluff. Twenty-three of them are of the Gary type (Newell and Krieger, 1949, p. 166), 10 are Ellis (ibid., pp. 166–167), 2 are Yarbrough (ibid., p. 168), and the other 19 are of indeterminate type. All the dart point types are of widespread distribution in the Caddoan Area, both in space and time. They all seem to occur in Archaic components as well as in both the Gibson and Fulton Aspects.

Arrow points (pl. 11).—Seven arrow points were recovered, one each of the types Maud, Bassett, and Fresno, and four indeterminate fragments.

Maud is a triangular, unstemmed point with a V-shaped concavity in the base. It was first recognized as a type by Krieger, but has not been described in print.* Maud is thought to be a diagnostic trait of the Texarkana Focus.

Bassett is similar in most respects to Maud, but has a tiny pointed stem in the basal concavity. Also first recognized by Krieger, Bassett has been briefly described by Webb (1948, p. 132). It occurs in components of the Texarkana, Belcher, Bossier, and Titus Foci.

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*AUTHOR'S NOTE. Maud, Bassett, and Fresno are described in detail by Suhm et al. (1954).

Fresno is one of the arrow points affiliated with the Central Texas Aspect, and is also common in Henrietta Focus and Rockport Focus components. First recognized as a type by Kelley (1947, pl. 13), it has not yet been described. Fresno is a triangular, unstemmed point with a straight to slightly concave or convex base. One face is frequently left smooth and unchipped, and the general execution of many specimens is relatively crude for arrow points.

Blades.—Few blades that may have been used as knives were found. Two small, crude blades may have been used for either cutting or scraping purposes, while four expertly fashioned stemmed blades (pl. 12, *a–d*) may be knives or possibly spear points.* Three of the latter were found piled together in square N5–E120; the fourth was in burial No. 5. All are made of Arkansas novaculite. Similar blades occur frequently in both Gibson and Fulton Aspect components, often in caches of two or more specimens.

Drills (pl. 12).—Four chipped-stone drills were found, all medium-small in size. Two of them are stemmed and one is unstemmed; the other is a fragment too small for description. The blades have been sharpened by pressure flaking from both faces.

Scrapers (pl. 12, k and l).—The six scrapers are irregular spalls with one or more edges sharpened from one face. The scraping edges of most of them are sharp, and some may have been used for cutting purposes.

Small picks (pl. 13).—These interesting items are called "picks" for lack of a better name. They are shaped somewhat like hand axes, but are very small, ranging from 4 to 8 cm. in length. They are very crudely made and might well be classified as rejects if they did not occur so frequently in sites of the region. They were made by sharpening a small nodule of flint or chert to a point on one end by percussion chipping; the other end of the nodule was not altered. The implement was probably grasped in the hand by the smooth end and used for light picking or chopping. Eight specimens were found at Knight's Bluff.

GROUND STONE

Grinding slabs.—One fragment of a sandstone grinding slab was found. As nearly as can be determined from the fragment, grinding was performed with a circular motion.

Manos (pl. 13, d).—Of the four manos, two are unshaped cobbles, the other two have been pecked into an elongated shape with parallel sides and rounded ends. The two unshaped manos and one of the shaped ones have small, shallow depressions or "pits" on both faces.

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*Author's note. These would now be classified as Pogo type spear points (Suhm et al., 1954, p. 398, pl. 78).

Hones (pl. 13, e).—Two pieces of sandstone are grooved in such a manner as to suggest that they were used as hones for sharpening bone or wooden implements. The larger one has five parallel grooves on one face and one groove on the opposing face. The smaller one has three parallel grooves on one face, none on the other.

Miscellaneous ground stone artifacts.—A roughly spherical, sandstone ball (pl. 13, *f*), approximately 2 cm. in diameter, was found. Its use is unknown.

There is one full-grooved sandstone maul or hammerstone (pl. 13, *g*). It is relatively small for a maul—5 cm. long, 3.5 cm. wide, and 2.5 cm. thick—but there is evidence of considerable battering at both ends. It was probably hafted and used for some sort of light percussion, perhaps for crushing nutshells.

Fragments of hematite were encountered throughout the digging. Some of them have smooth facets, evidently a result of grating the red pigment for use in preparing paint.

POLISHED STONE ARTIFACTS

Celts.—Three celts (pl. 14, *a–c*) were found, one of them a thin, flat, elongated, waterworn pebble with one end chipped to a broad, convex edge that was then smoothed. The body is unworked. The specimen is 6.5 cm. long, 7 mm. thick, 4 cm. wide at the bit, and tapers slightly to a width of 3.3 cm. at the base. Similar celts made from flat, waterworn pebbles have been observed in collections from the vicinity of Texarkana.

One of the other celts is made of the hard grayish-green stone used so frequently for celts in the Caddoan Area. It is oval in cross section and tapers from a width of 4.1 cm. at the bit to 2.2 cm. at the rounded base. Thickness is 3 cm. and length 8 cm. The body has been pecked into shape but has not been polished; the bit is steep and well polished, the cutting edge slightly convex.

The third celt is a flat, angular specimen of hematite which has been polished all over. It is 6.1 cm. long, 3.6 cm. wide, and 1.5 cm. thick. The bit is steep and the cutting edge slightly convex.

Full-grooved axes (pl. 14, d).—Three full-grooved axes were found, all made of hematite. Two are too fragmentary for accurate description, but the third and smallest one is almost complete. It is well smoothed and polished, and striations from the smoothing abrasive are visible running laterally across both faces. It is a single-bitted ax with a poll at one end and a very smooth groove encircling the blade laterally. The groove is about 1.5 cm. wide, its center being 5 cm. from the bit end and 2.3 cm. from the poll end. Width at the poll end is 5.1 cm., and there is a slight taper from groove to bit, width at the bit being 4.7 cm. The cutting edge is slightly convex and fairly sharp. Maximum thickness is 2.3 cm. and overall length is 7.3 cm. Many similar specimens have been found in the Caddoan Area, most of them, however, larger than the one described here.

Boatstone.—A piece of what seems to have been a keeled boatstone is made of a soft, gray marl (pl. 13, *h*). It was elongated, with parallel or slightly convex sides and rounded ends. The keel is 1.2 cm. wide. Deep scratches on the under side appear to represent initial efforts to hollow out a depression; that the hollowing out was not completed may indicate that the piece was discarded before completion—perhaps due to accidental breakage. Overall length of the whole specimen must have been approximately 6 cm. Maximum width is 3 cm. and the height, from base to highest portion of keel, is 1.9 cm.

MISCELLANEOUS STONE SPECIMENS

In addition to the three pitted manos mentioned above, there are seven other pitted stones. The stones are irregular and unshaped, ranging in weight from 1 to 5 pounds. The pits are on one or more faces of the stones, there usually being one pit to a face although there are two closely spaced pits in one instance. The pits are roughly circular, 2 to 3 cm. in diameter, and from 1 mm. to 1 cm. in depth. Use of the pitted stones is strictly conjectural, but it has been suggested that they may have been used as anvils for chipping stone implements or for cracking nuts.

One small quartz crystal was probably a charm. Quartz crystals occur commonly in Caddoan Area sites, probably having been obtained in the Ozarks.

BONE

Awls.—There are two sharpened bone implements possibly used as awls. One (pl. 14, *g*) is a long, curved fishbone with a polished distal end indicating considerable usage. Length, measured along the curve, is 12.5 cm. The other possible awl (pl. 14, *h*) is fashioned from a long bone of a deer and is 14.6 cm. in length. Scratches and polish on the sharpened distal end indicate much use; the proximal end is unmodified.

Flaking implements.—Two blunt-tipped implements (pl. 14, *f*), apparently used for pressure flaking of stone, were found. Both are made of deer ulnas, one a right ulna, the other a left one. In manufacturing flaking implements of this sort, the distal few inches of the ulna was cut off and discarded, and the tip of the remaining portion was worked to a convex edge, sometimes beveled from one face. The articular area of the ulna and the olecranon, left unchanged, provide a convenient grip for grasping the implement. Overall length of the one complete specimen from Knight's Bluff is 12 cm.

Bead.—One bone bead was found (pl. 14, *i*). It appears to have been fashioned from a deer metapodial by severing both ends. It is 2.1 cm. long and 1.4 cm. in diameter.

SHELL

Perforated mussel shells (pl. 14, k).—The 17 perforated mussel shells are all of a kind. They are medium-sized shells with a roughly circular perforation just below the hinge. The perforations are 2 to 3 cm. in diameter and were evidently punched into the shell. There are no tool marks, at any rate, to indicate that they were cut or drilled. Use of such perforated shells is uncertain, but a considerable distribution, in both time and space, in North America is indicated by archeological data.

Pendant.—A small, flat, mussel-shell pendant (pl. 14, *j*), with two closely spaced suspension holes near one end, lay at the neck of burial No. 7. It is perfectly plain, with no indication of an engraved design. Length is 2.9 cm., width 1.5 cm., and thickness 3 mm.

A tabulation follows of all artifacts from the Knight's Bluff Site.

TABLE 1.—*All artifacts from the Knight's Bluff Site*

	Number
CERAMICS:	
Complete and restorable vessels:	
Pease Brushed-Incised (one each with burials Nos. 4, 5, 9, 10, and 11)	5
Nash Neck Banded (two from burial No. 2; one from general digging)	3
Haley Engraved (one each with burials Nos. 2 and 9)	2
Possible variants of Haley Engraved (one each with burials Nos. 10 and 11)	2
Antioch Engraved (one each with burials Nos. 2, 4, and 7)	3
Friendship Engraved (with burial No. 7)	1
Unclassified, engraved (with burial No. 11)	1
Unclassified, brushed (with burial No. 4)	1
Potsherds:	
Plain, clay-tempered body sherds	2,757
Plain, clay-tempered rimsherds	72
Plain, bone-tempered body sherds	105
Plain, bone-tempered rimsherds	3
Plain, shell-tempered body sherds	62
Plain, shell-tempered rimsherds	1
Plain, very sandy paste	6
Baytown-like body sherds, plain	277
Baytown-like rimsherds, plain	7
Barkman Engraved, carinated bowls	329
Barkman design, incised, carinated bowls	3
Bowie Engraved	1
Hatchel Engraved	2
Simms Engraved	7
Avery Engraved	3
Belcher Engraved, bottles	2

TABLE 1.—*All artifacts from the Knight's Bluff Site*—Continued

CERAMICS—Continued	
Potsherds—Continued	*Number*
Haley Engraved	15
Antioch Engraved	4
Higgins Engraved	1
Pease Brushed-Incised	392
Nash Neck Banded	142
Dunkin Incised, late variant	86
McKinney Plain	219
Belcher Ridged	10
Pennington Punctated-Incised	13
Cass Appliqued	24
Foster Trailed-Incised	6
Crockett Curvilinear Incised	6
Crockett or Pennington	1
Coles Creek-like	8
Marksville Stamped	1
Rattle bowls	3
Engraved, not further classified	606
Brushed sherds, not further classified	594
Incised sherds, not further classified	328
Punctated sherds, not further classified	186
Applique sherds, not further classified	72
Miscellaneous sherds, unclassified	20
Long-stemmed, thin-walled pipe fragments	15
Short-stemmed, elbow pipe fragments	1
Earspools (?)	1
CHIPPED-STONE ARTIFACTS:	
Dart Points:	
Gray	23
Ellis	10
Yarbrough	2
Indeterminate	19
Arrow points:	
Maud	1
Bassett	1
Fresno	1
Indeterminate	4
Blades:	
Small, crude	2
Stemmed, well made (spear points?)	4
Drills	4
Flake scrapers	6
Small "picks"	8
Cores or rejects	2
Gouges	2
Indeterminate worked flint	8
GROUND-STONE ARTIFACTS:	
Pitted manos	3
Unpitted manos	1
Grinding slabs	1
Sandstone hones	2
Small, full-grooved hammerstones	1
Small sandstone balls	1

TABLE 1.—*All artifacts from the Knight's Bluff Site*—Continued

	Number
POLISHED STONE ARTIFACTS:	
Celts, oval in cross section	1
Celts, rectangular in cross section	2
Hematite axes, full-grooved	3
Boatstones (?)	1
MISCELLANEOUS STONE SPECIMENS:	
Pitted stones	7
Hammerstones	1
Quartz crystals	1
Hematite pigment	9
BONE AND ANTLER ARTIFACTS:	
Bone awls	2
Tubular bone beads	1
Deer ulna flakers	2
Worked antler, indeterminate	1
SHELL ARTIFACTS:	
Perforated mussel shells	17
Pendant, plain, mussel shell	1
TOTAL	6,564

DISCUSSION AND CONCLUSIONS

The principal occupation at the Knight's Bluff Site was evidently by a small village of people over a period of several decades. Light prior occupation by nonceramic peoples is indicated, and there is the possibility that campers stopped over at the site from time to time after abandonment of the village.

Although evidence is scanty, the earlier occupation can be rather certainly related to that somewhat vague archeological manifestation termed the Southeastern Archaic, the East Texas equivalent of which has been briefly described under the name East Texas Aspect (Suhm et al., 1954, pp. 148–151). This preagricultural, preceramic culture is thought to have had an economy of hunting and gathering that resulted in seasonal nomadism. Consequently, the early Knight's Bluff occupation is not likely to have been a continuous residence by one group of people, but can be attributed, rather, to small groups of nomads who camped at the site intermittently, perhaps over a span of some centuries.

The Knight's Bluff Village (this term will henceforth be used in reference to the principal occupation of the site), on the other hand, was sedentary in character. This view is supported by the discovery of one permanent type house (and there are undoubtedly others not encountered during the excavations) and the relatively large quantity of ceramics. No direct evidence of agriculture was found, but, because the village seems to have been permanent in nature and because remains of agricultural products have been discovered in closely related sites, it can be safely assumed that agriculture was practiced.

A framework of Neo-American archeological complexes has been established for the Caddoan Area, consisting of two broad divisions, the Gibson and Fulton Aspects, and a number of affiliated foci. Recognition of these different complexes is based upon studies of distribution and associations of artifact types and other cultural traits. When the Knight's Bluff Village material is compared to the complexes of the various foci and aspects of the Caddoan Area, however, it is readily apparent that a neat assignment to one particular focus, as the foci have been defined, is not possible. Instead, there is a somewhat complicated mixture of types from several different focal complexes.

The following list is of pottery types thought to be resident types of the Knight's Bluff Village. Opposite each type is the focus (or foci) with which it is affiliated in the classification of Caddoan Area complexes established by Krieger, Webb, and others.*

Resident types	*Focal affiliations*
Nash Neck Banded	Texarkana and McCurtain Foci, Fulton Aspect.
McKinney Plain	Texarkana Focus, Fulton Aspect.
Barkman Engraved	Texarkana Focus, Fulton Aspect.
Pease Brushed-Incised	Bossier Focus, Fulton Aspect.
Dunkin Incised, late variant	Bossier Focus, Fulton Aspect, and Phase 3 of Alto Focus, Gibson Aspect.
Baytown-like	No affiliations noted in the Caddoan Area; probably related to types of the Coles Creek, Troyville, and Marksville complexes of the Lower Mississippi Valley.
Minor resident types	
Haley Engraved	Haley Focus, Gibson Aspect.
Belcher Ridged	Belcher Focus, Fulton Aspect.
Cass Appliqued	Glendora and Texarkana Foci, Fulton Aspect.
Simms Engraved	Glendora, Texarkana, and McCurtain Foci, Fulton Aspect.
Bowie Engraved	Texarkana and Mid-Ouachita Foci, Fulton Aspect.
Hatchel Engraved	Texarkana Focus, Fulton Aspect.
Foster Trailed-Incised	Texarkana and Belcher Foci, Fulton Aspect.
Avery Engraved	Texarkana, Glendora, and McCurtain Foci, Fulton Aspect.
Rattle Bowls	Frankston, Texarkana, and Titus Foci, Fulton Aspect.
Antioch Engraved	Fulton Aspect (?).

Examination of the list reveals that the only Gibson Aspect types that might be considered resident types are Dunkin Incised, late variant, of the Alto Focus, and Haley Engraved of the Haley Focus. Dunkin Incised, late variant, is also considered indigenous to the Bossier Focus, and consequently can be considered a Fulton Aspect type. (There is the possibility, it will be recalled, that some of the

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*Author's note. The cultural affiliations listed here for some of the types are not exactly the same as those given by Suhm et al. Their suggested affiliations, based on extensive distribution studies, are undoubtedly more accurate than mine.

Dunkin sherds at Knight's Bluff and perhaps some of those from the Bossier Focus sites investigated by Webb, may be from Pease vessels.) Thus Haley Engraved is the only Gibson Aspect pottery type that may be resident, and it is at best only a minor resident type.

Pottery types, then, would seem to indicate that the Knight's Bluff Village is affiliated, by and large, with the Fulton Aspect. Further support of that supposition lies in the presence of some shell-tempered pottery (which is thought to have been introduced after the disappearance of the Gibson Aspect), two arrow points of the types Maud and Bassett (Maud having been identified with the Texarkana Focus, and Bassett with the Texarkana, Belcher, and Bossier Foci), and the general character of the site.

On the other hand, 15 of the 16 pipe fragments, representing at least 6 different pipes, are of the long-stemmed, thin-walled variety, thought to have disappeared by Fulton Aspect times. In addition, two Haley Engraved bottles occurred in burials, and two others may be related to Haley Focus forms. Furthermore, 13 Pennington Punctated-Incised sherds and 6 sherds of Crockett Curvilinear Incised were found, several of each type being in situ in the compact house floor midden in evident primary association with the principal resident types. Pennington is considered peculiarly an Alto Focus type, while Crockett is shared by the Alto and Haley Foci and is closely related to a Spiro Focus type, Keota Curvilinear Incised.

But, disregarding for the moment any suggestion of affiliation or contemporaneity with the Gibson Aspect, let us attempt to identify the Knight's Bluff material specifically with one or another of the Fulton Aspect Foci. In the list above correlating resident pottery types to foci, it will be observed that Texarkana Focus appears 10 times, Glendora Focus 3 times, McCurtain Focus 3 times, Belcher Focus 2 times, Bossier Focus 2 times, Mid-Ouachita Focus 1 time, Frankston Focus 1 time, and Titus Focus 1 time. First of all, Glendora, McCurtain, Mid-Ouachita, Frankston, and Titus can be eliminated because all of their types that are present at Knight's Bluff are types shared with the Texarkana Focus, the really unique and diagnostic types of all five of these foci being absent.

All pottery types belonging to the Texarkana complex are present at Knight's Bluff, but three of them—Avery Engraved, Simms Engraved, and Foster Trailed-Incised—are represented by only a handful of sherds. Barkman Engraved, McKinney Plain, and Nash Neck Banded, the other three Texarkana pottery types, are all major resident types at Knight's Bluff. The case for assigning the Knight's Bluff Village to the Texarkana Focus, then, is fairly strong, but would require enlargement of the Texarkana type inventory to include Pease Brushed-Incised and Baytown-like as major types. And

Dunkin Incised, late variant, Belcher Ridged, and the tentative types Haley Engraved and Antioch Engraved would also have to be included either as minor affiliates or as trade items.

Factors for and against assignment of the Knight's Bluff Village to either the Belcher or Bossier Focus, in sum, add up to much weaker relationships in both cases than in the case of Texarkana Focus; therefore, it hardly seems worthwhile to trace them in detail here.

The Knight's Bluff Village appears, then, to be essentially a component of the Texarkana Focus, with the addition of two major pottery types, Pease Brushed-Incised (also an integral type of the Bossier Focus) and Baytown-like (related to types of the Lower Mississippi Valley). Three pottery types of the Texarkana Focus—Avery Engraved, Simms Engraved, and Foster Trailed-Incised—are only sparsely represented. Krieger (oral communication) has observed that Simms Engraved was probably adopted at a relatively late date and did not reach full popularity until near the end of the Texarkana Focus, after which it continued as a major type of the Glendora Focus. Although possibly appearing earlier than Simms, Avery seems to have reached its peak of popularity in northeastern Texas with the Glendora Focus.* The history of Foster Trailed-Incised is more obscure, but its development may well have culminated in a similar type, Keno Trailed, of common occurrence in Glendora Focus components.

Thus two of the three Texarkana types that are poorly represented at the Knight's Bluff Village can be said to have appeared relatively late in the Texarkana Focus, and the third type, Foster Trailed-Incised, may have a similar temporal distribution. Therefore, it seems likely that the Knight's Bluff Village represents a segment in the earlier history of the Texarkana Focus.

In support of an alinement with early Texarkana Focus are the presence of long-stemmed clay pipes of Gibson Aspect form, which probably are survivals not yet replaced by the short-stemmed elbow pipes affiliated with later phases of the Texarkana Focus and the Glendora Focus. Other possible survivals from the Gibson Aspect, via the Haley Focus, are the types Haley Engraved and Crockett Curvilinear Incised. Since the Bossier Focus is generally considered to occupy a relatively early position in the Fulton Aspect, the presence in quantity of one of its major pottery types, Pease Brushed-Incised, is further corroboration of a comparatively early placement for the Knight's Bluff Village.

One note of discord is injected by the apparent association of Alto Focus type Pennington Punctated-Incised with the Knight's Bluff

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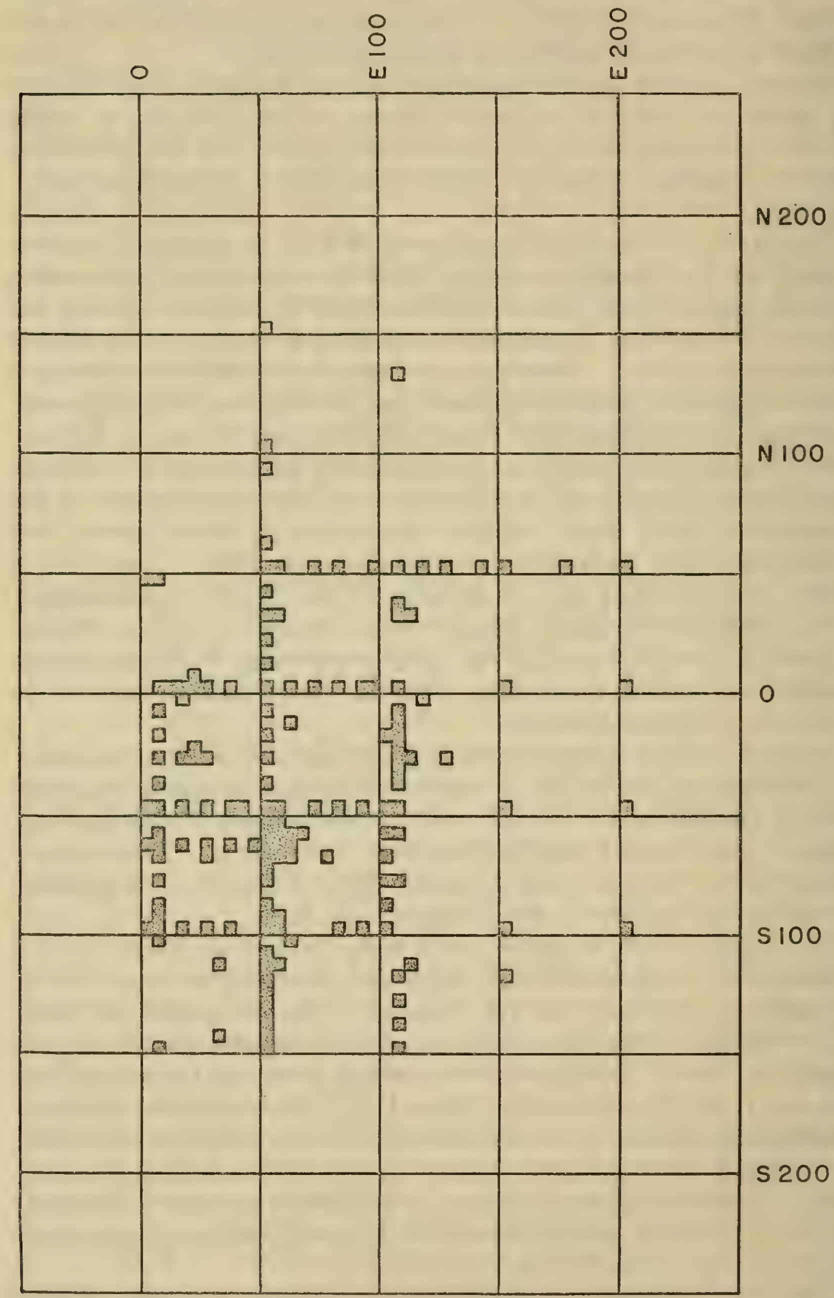
*AUTHOR'S NOTE. Suhm et al. note the rare occurrence of both Simms and Avery with European trade material, but state that the two types belong mainly to the late prehistoric period.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E 100
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S 200

FIGURE 5.—Sketch map of Snipes Site, showing grid reference system. Stippling denotes excavated areas.

Village occupation. Barring some highly improbable set of circumstances by which a few vessels of that type might have survived for a considerable period of time as isolated heirlooms or museum pieces, there come to mind only two possibilities: (1) that the later phases of the Alto Focus were contemporaneous with the earliest part of the Texarkana Focus or (2) that Pennington outlived the Alto Focus, continuing as a minor type in subsequent complexes. The present writer, not having sufficient data at hand for accurate interpretation of the problem, is unable to give any sort of indication as to which of the two possibilities is more likely.

Of particular interest, in view of long-standing differences of opinion regarding temporal alinement of Caddoan and Lower Mississippi complexes, is the occurrence at Knight's Bluff, in some quantity, of what appears to be a characteristically Lower Mississippi ware, termed Baytown-like. Since the Snipes and Sherwin Sites, described later in this report, yielded significant data concerning this problem, further discussion will be postponed until the final section.

THE SNIPES SITE (41-20D4-3)

The Snipes Site lies on the long northern slope of a low hill, approximately a mile south of the Sulphur River and 100 yards east of State Highway 8 between Maud and Douglassville. It is well known to local collectors who have picked up hundreds of artifacts from the surface. During his preliminary survey of the Texarkana area, Stephenson was guided to the Snipes Site by Bogie Price. They found surface indications consisting of flint chips, mussel shells, bone scraps, flecks of charcoal, potsherds, and other artifacts scattered over an area of 6 or 7 acres. The hillside on which the site is located is at the edge of the upland overlooking the Sulphur River bottom to the north.

The excavations at Snipes were begun May 27, 1952, and continued through June 5. A grid type reference system similar to the one employed at Knight's Bluff was established, and test squares were sunk at 50-foot intervals. Trenches or rows of alternate 5-foot squares were then excavated across the most promising areas, and, in some cases, additional squares were opened adjacent to the most productive test squares. Figure 5 indicates the squares that were excavated.

The basal geological formation was a reddish, compact clay (stratum 1) lying 8 to 15 inches below the surface and extending to unknown depth. Overlying stratum 1 was the surface member of gray sand (stratum 2) in which were found all of the cultural remains. The cultural material was dispersed throughout the upper portion of stratum 2, extending almost down to stratum 1 in the central part of the site and lensing out gradually toward the edges.

(Position of the strata is shown in fig. 6.) Stratum 1 was completely sterile of cultural remains. The occupational zone ranged in thickness from 3 or 4 to about 15 inches and, since the site lies in an old field which has been cultivated more or less continuously for about three-quarters of a century, it had been greatly disturbed by plowing. Even the burials were only a few inches deep, and several concentrations of badly scattered, broken human bones indicated that some burials were completely destroyed by the plow.

No house patterns or other prominent features were encountered except for the burials, possibly because cultivation may have destroyed any that were present. The cultural zone was fairly homogeneous, the only differentiation being a heavier, thicker concentration in the central portion of the site and several small spots where a great deal of carbon and grease had cemented the sand of stratum 2 into relatively compact layers. Most of the animal bones were found in the vicinity of these compact spots, which bolsters the suspicion that the spots are remnants of small refuse heaps which have been almost completely destroyed by plowing.

On January 14, 1954, approximately 1½ years after the excavations described above, the writer revisited the Snipes Site with Ed Moorman and Bogie Price. A bridge across the Sulphur River just below the site was being raised so as to clear the waters of Texarkana Reservoir, and earth-moving operations, which had been carried on at the Snipes Site in connection with construction of the bridge, had scraped portions of stratum 2 off most of the occupation area. A small pile of human skull fragments was found on the scraped surface, and excavation exposed a burial that had been struck by the bulldozers. This burial was designated as burial No. 7, the next number in the sequence begun in the previous excavations. Subsequently, Bogie Price found two more burials, Nos. 8 and 9, and a complete pottery vessel that was apparently not associated with a burial. Description and analysis of the three additional burials and the vessel are included herein with the previously acquired data.

BURIALS

Several areas containing scraps of human bones—apparently the remains of burials badly scattered by the plow—were so ill-defined that their original placement could not be determined. The nine relatively undisturbed burials were just a few inches beneath the surface of the ground, and all had been disturbed to more or less extent. Two were single flexed inhumations without offerings of nonperishable nature; the other seven were of the extended type, one being a multiple burial of three individuals, another containing two individuals, and five being single burials. Five graves contained mortuary offerings.

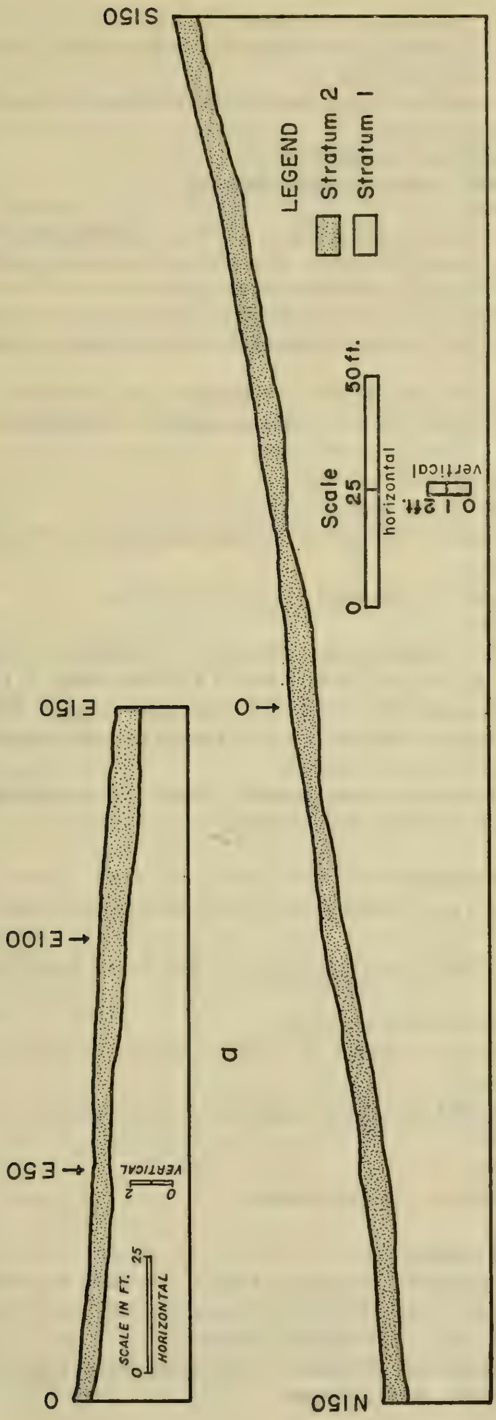
S150
N150
E150
E100
E50
0
0
a
b
LEGEND
Stratum 2
Stratum 1
Scale
0
25
50 ft.
horizontal
vertical
0
1
2 ft.
SCALE IN FT.
0
25
HORIZONTAL
VERTICAL
0
2

FIGURE 6.—Profiles, Snipes Site. *a*, Idealized east-west profile at line 0; *b*, idealized north-south profile at line E50.

Burial No. 1:

Location: Squares S65–E50 and S70–E50.

Grave dimensions: Indeterminate except for depth, which was about 10 inches below the present surface.

Type of burial: Contained three individuals, all extended on the back.

Orientation: Heads to south.

Dimensions of skeletons: Indeterminate.

Completeness: Feet, arms, and trunks missing.

Preservation: Poor.

Associations: One plain pottery vessel of Baytown-like paste (pl. 4, *a*) containing 22 flint chips, 2 pieces of hematite, 1 piece of petrified wood, and 1 small flint drill; 1 greenstone celt (pl. 13, *i*).

Physical observations and measurements: Two adults, one adolescent. Preservation too poor for measurements or other observations.

Burial No. 2:

Location: Squares S95–E50, S95–E55, S100–E50, and S100–E55.

Grave dimensions: Depth, 9 inches below surface; other dimensions indeterminate.

Type of burial: Flexed, on left side.

Orientation: Head to southeast.

Dimensions of skeleton: Length, 54 inches; maximum width, 26 inches; thickness, 8 inches.

Completeness: Fragments of most major bones present.

Preservation: Poor.

Associations: A few inches to the left side of the skeleton was a round depression, 14.5 inches in diameter and 5.5 inches deep, in the floor of the grave. It was partially filled with badly deteriorated, black, fibrous material. This may be the remains of a basket or other vegetal artifact, but identification cannot be certain.

Physical observations and measurements: Adult. Preservation too poor for measurements or other observations.

Burial No. 3:

Location: Square S100–E5.

Grave dimensions: Depth below surface, 14 inches; other dimensions indeterminate.

Type of burial: On back with legs loosely flexed to the right; arms folded across chest.

Orientation: Head to north-northwest.

Dimensions of skeleton: Length, 47 inches; maximum width, 20 inches; thickness, 7 inches.

Completeness: At least vestiges of most major bones present.

Preservation: Fair.

Associations: None.

Physical observations and measurements:

Sex: Male.

Age: 45 to 50 years.

Cranial measurements: Maximum length, 165 mm.; maximum width, 154 mm.; index, 93.3 (hyperbrachycranic); minimum frontal diameter, 82 mm.; bigonial diameter, 98 mm.

General observations: Prominent continuous brow ridges; no prognathism; widely flaring malars.

Burial No. 4:

Location: Square S150–E50.

Grave dimensions: Indeterminate except for depth, which was about 6 inches below the surface.

Type of burial: Apparently extended on the back.

Orientation: Head to southwest.

Dimensions of skeleton: (Approximate) maximum length, 50 inches; maximum width, 15 inches; thickness, 6 inches.

Completeness: Vestiges of most major bones present.

Preservation: Poor.

Associations: None.

Physical observations and measurements: Child. Other observations and measurements indeterminate.

Remarks: Badly disturbed and scattered.

Burial No. 5:

Location: S50–E50 and S55–E50.

Grave dimensions: Depth, 4 inches; other dimensions indeterminate.

Type of burial: Apparently extended on the back.

Orientation: Head to southwest.

Dimensions of skeleton: Indeterminate.

Completeness: Fragments of most major bones present.

Preservation: Poor.

Associations: None.

Physical observations and measurements: Adult. Other observations and measurements indeterminate.

Remarks: Very badly disturbed and scattered.

Burial No. 6:

Location: Square S65–E60.

Grave dimensions: Depth, 14 inches below the surface; other dimensions indeterminate.

Type of burial: Extended, on back.

Orientation: Head to northeast.

Dimensions of skeleton: Indeterminate.

Completeness: Vestiges of most major bones present.

Preservation: Very poor.

Associations: A medium-sized, barrel-shaped pottery vessel (pl. 4, *b*), of type Coles Creek Incised, lay at the right shoulder.

Physical observations and measurements: Adult. Other observations and measurements indeterminate.

Remarks: Only traces of bones remained.

Burial No. 7:

Location: In northeastern part of site.

Grave dimensions: Indeterminate except for depth which was approximately 12 inches below the surface.

Type of burial: Extended, on back.

Orientation: Head to south-southeast.

Dimensions of skeleton: Not recorded.

Completeness: Traces of most major bones present.

Preservation: Poor.

Associations: A small, plain, simple bowl (pl. 4, *c*) of Baytown-like paste, with convex walls and rounded base, lay at the left shoulder.

Physical observations and measurements: Adult. Other observations and measurements indeterminate.

BURIAL No. 7—Continued

Remarks: Burials Nos. 7, 8, and 9 were discovered in January 1954, after the reference points had been destroyed by the earth-stripping operations of the Texas Highway Department. Therefore these burials were not located in reference to the grid system used in the principal excavations. Neither were exact dimensions of the graves and skeletons recorded; and other observations are not available in some instances.

BURIAL No. 8:

Location: In northeastern part of site, a few feet south of burial No. 7.

Grave dimensions: Not recorded, but grave was shallow.

Type of burial: Contained two individuals, both extended on the back.

Orientation: Heads to south-southeast.

Dimensions of skeletons: Not recorded.

Completeness: Not recorded.

Preservation: Poor.

Associations: A small, plain bowl (pl. 4, *d*) of Baytown-like paste at left shoulder.

Physical observations and measurements: None recorded.

BURIAL No. 9:

Location: In northeastern part of site.

Grave dimensions: Not recorded, but grave was shallow.

Type of burial: Not recorded.

Orientation: Not recorded.

Dimensions of skeleton: Not recorded.

Completeness: Not recorded.

Preservation: Poor.

Associations: One small bowl (pl. 4, *e*) of Baytown-like paste with everted rim.

Physical observations and measurements: None recorded.

THE ARTIFACTS

The 1,205 artifacts recovered from the Snipes Site are different in many respects from those of Knight's Bluff and Sherwin, although several types occur at all three sites. Most of the pottery is stylistically of the Lower Mississippi tradition, but Caddoan styles are also present. Thus the Snipes Site appeared at first to offer an excellent opportunity for alining Caddoan and Lower Mississippi complexes. However, the cultural deposits were so shallow and had been so disturbed by cultivation that the relationships between the Caddoan and Lower Mississippi material could not be determined with certainty.

After the first test pits had confirmed the fact that pottery of both traditions was present, an effort was made to locate undisturbed areas where stratigraphic separation of the two complexes might exist. Unfortunately, no such areas were found. When burials containing Lower Mississippi vessels were encountered, the areas beneath the grave floors were carefully examined for the purpose of ascertaining if any Caddoan material lay beneath the graves and could therefore be shown to be earlier than the Lower Mississippi burials. Both Caddoan and Lower Mississippi sherds were found in the grave fill material (which had been disturbed by the plow in every case) down to the grave floors, but the burials had been dug entirely through the occupational zone and no cultural material of any kind occurred beneath the graves.

Analysis in the laboratory indicates that the distribution patterns of the two different ceramic traditions at Snipes are similar, with concentrations in the central portion of the excavated area and a thinning out peripherally. No differences in vertical distribution were detected. The only suggestion of differentiation is the relative frequency of Caddoan sherds, as compared with Lower Mississippi sherds, in the eastern portion of the site. Actually, both kinds are scattered very thinly in that area, and the comparative frequency of Caddoan material may not be particularly significant. This slightly different intrasite distribution does suggest some differences in the cultural affiliations of the two ceramic traditions within the site—as was to be expected—but does not clarify the question of whether the Caddoan material represents a separate occupation of the site, is present as trade material, or represents accretions to a basically Lower Mississippi complex.

CERAMICS

The predominant pottery style at Snipes has a thick, friable paste with chalky exterior. It appears to be identical with the type Baytown Plain (Phillips, Ford, and Griffin, 1951, pp. 76-82) in paste characteristics with the exception that Baytown evidently is never bone tempered while 33.7 percent of the Snipes sherds contain angular fragments of bone in addition to clay particles. Because of the bone tempering and other factors, the Snipes specimens will not be definitely identified as Baytown Plain; however, similarity to Baytown is so close that separation as an entirely different type is not warranted. Consequently this pottery will herein be termed Baytown-like.*

Baytown Plain is the basic clay-tempered type for the Lower Mississippi area from the Tchefuncte Period to the beginning of the Plaquemine Period (or the period G-C in the chronology of Phillips, Ford, and Griffin). In addition to plain vessels, many decorated pottery types of the Marksville, Troyville, and Coles Creek Periods are also of Baytown paste.

Color of Baytown-like, the comparable type at the Snipes Site, ranges from light buffs (occasionally tinged with orange) through creams and browns to grays. Surfaces are smoothed, but bumpy, with a chalky feel, and tool marks are frequently visible. The paste is heavily tempered with small- to medium-sized particles of clay, sometimes with the addition of bone fragments, and cores are usually darker than surfaces. Wall thickness ranges from 6 to 13 mm., with an average near 9 mm. Principal vessel shape, as indicated by sherds, is a large, barrel-shaped or cylindrical form with a flat, round base, or rarely with a square base. Juncture of the base and wall is often reinforced on the interior; the exterior juncture forms a sharp angle. Rims are vertical to slightly incurved or outcurved, and lips may be flattened (39.6 percent) or convex (60.4 percent).

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*Author's note. Since this paper was written I have examined specimens of Williams Plain pottery from Fourche Maline sites in eastern Oklahoma that are similar in paste characteristics to what is here called Baytown-like. The vessel shapes of Williams Plain, though, are somewhat different from the Baytown-like ware found at Texarkana as nearly as can be determined from the sherds. Both kinds of pottery, in any event, appear to be related to the Baytown series of the Lower Mississippi Area.

Other than the 813 specimens of Baytown-like (including the complete vessels), there are only 24 sherds and 1 complete vessel of Lower Mississippi types. The vessel (pl. 4, *b*), from burial No. 6, and 21 of the sherds (pl. 10) are of the type Coles Creek Incised (Ford, 1951, pp. 74–76), 2 sherds (pl. 10, *f*) have been tentatively identified as Marksville Incised (Ford and Willey, 1940, p. 78), and 1 sherd (pl. 10, *e*) is thought to be of the type Evansville Punctated (Phillips, Ford, and Griffin, 1951, pp. 90–91). All of these are of Baytown-like paste, but walls tend to be thinner and paste somewhat harder than in most of the Baytown-like sherds. Some of the plain sherds classified as Baytown-like undoubtedly came from the bodies of vessels with decorations such as these on the rims.

A total of 290 sherds was classified as Caddoan, although only 9 of them could be definitely identified as to type. The identified types are Barkman Engraved, Simms Engraved, Pease Brushed-Incised, Cass Appliqued, Pennington Punctated-Incised, Crockett Curvilinear Incised, and Holly (or Spiro) Fine Engraved. There are 3 sherds of Barkman, 1 sherd each of the others.

One fragment of a long-stemmed, thin-walled clay pipe (pl. 11, *a*) was found.

Of the various pottery types present, only Baytown-like and Coles Creek Incised can be designated as resident types of the principal occupation with any degree of certainty. This does not mean, however, that none of the other types are resident; in fact, the mere presence of sherds that are probably Marksville Incised and Evansville Punctated so far from their normal centers of distribution suggests direct affiliation with Baytown-like and Coles Creek Incised, which are also Lower Mississippi types of the Baytown Period and also strangers in the Caddoan Area. As pointed out above, the relationship of the Caddoan pottery to the Lower Mississippi occupation is not clear. It may be trade material in a basically Lower Mississippi component, or it may represent an entirely different occupation of the site—either before or after occupation by the Lower Mississippi affiliates.

NONCERAMIC

Nonceramic artifacts are similar in general to those at Knight's Bluff and Sherwin except that arrow point type Alba is more frequent at Snipes. All the artifacts are listed in table 2; types and forms that were described for Knight's Bluff are not redescribed here. Brief descriptions follow of two projectile point types not found at Knight's Bluff.

The seven Alba points (pl. 11) are good examples of the type as described by Krieger (Newell and Krieger, 1949, pp. 161–162). They are small with bulbous stems, and several have characteristically outflaring barbs.

One dart point (pl. 11, *t*) of Paleo-American form was found in the upper part of stratum 2. Maximum width (1.6 cm. above the base) is 2.7 cm., overall length approximately 6 cm. (the tip is missing), and maximum thickness is 7 mm. The base is almost straight, but has a suggestion of concavity, and the lateral edges have been smoothed up to the point of maximum blade width. This specimen is probably of the Plainview type (Krieger, 1947) or closely related thereto. Its presence at the Snipes Site is very likely intrusive.

The only nonceramic artifact type found in sufficient quantity to suggest status as a resident type is Alba arrow point. Distribution of Alba extends from the Brazos River eastward as far as the Mississippi Valley where it is found in association with complexes of the Baytown Period (Ford, 1951, pp. 115–117).

TABLE 2.—*All artifacts from the Snipes Site*

	Number
CERAMICS:	
Complete and restorable vessels:	
Plain, flower-pot-shaped, Baytown-like paste (with burial No. 1)	1
Plain bowl with rounded base, convex walls, and incurving rim, Baytown-like paste (with burial No. 7)	1
Plain bowl with flat, round base and straight walls slanting outward, Baytown-like paste (with burial No. 8)	1
Plain bowl with flat, round base and everted rim, Baytown-like paste (with burial No. 9)	1
Coles Creek Incised (with burial No. 6)	1
Small bowl with rounded base and slightly everted rim. Short, diagonal, incised lines applied from lip to base and one horizontal row of punctates encircles the neck. Caddoan paste; apparently not associated with a burial	1
Potsherds:	
Baytown-like, clay tempered	605
Baytown-like, bone tempered	204
Coles Creek Incised	21
Evansville Punctate (?)	1
Marksville Incised (?)	2
Barkman Engraved	3

TABLE 2.—*All artifacts from the Snipes Site*—Continued

	Number
CERAMICS—Continued	
Potsherds—Continued	
Simms Engraved	1
Pease Brushed-Incised	1
Cass Appliqued	1
Pennington Punctated-Incised	1
Crockett Curvilinear Incised	1
Pennington or Crockett	1
Holly, or Spiro, Fine Engraved	1
Plain, indeterminate	155
Brushed, indeterminate	22
Incised, indeterminate	60
Engraved, indeterminate	37
Appliqued, indeterminate	3
Punctated, indeterminate	3
Miscellaneous, unclassified	12
Long-stemmed, thin-walled pipes	1
CHIPPED-STONE ARTIFACTS:	
Dart points:	
Gary	10
Ellis	1
Yarbrough	1
Plainview (?)	1
Indeterminate	10
Arrow points:	
Alba	7
Indeterminate	4
Small, crude blades	5
Flake scrapers	4
Small "picks"	1
Small, unstemmed drills	5
Indeterminate worked flint	4
GROUND- AND POLISHED-STONE ARTIFACTS:	
Grinding slabs	1
Manos	2
Hones	1
Polished hematite fragment	1
Greenstone celt, oval in cross section (with burial No. 1)	1
MISCELLANEOUS:	
Hammerstones	2
Polished antler tips	1
Worked mussel shell	1
TOTAL	1,205

DISCUSSION AND CONCLUSIONS

Principal occupation at the Snipes Site was by a group of people closely allied with the Baytown Period of the Lower Mississippi Valley. Caddoan pottery roughly contemporaneous with the Knight's Bluff and Sherwin components was also present, but its exact relationship to the Lower Mississippi occupation is not clear because of the disturbed condition of the site. Lower Mississippi pottery types are Baytown-like, Coles Creek Incised, and possibly Marksville Incised and Evansville Punctated. Caddoan ceramics include the types Barkman Engraved, Simms Engraved, Pease Brushed-Incised, Cass Appliqued, Pennington Punctated-Incised, Crockett Curvilinear Incised, and Holly (or Spiro) Fine Engraved.

Temporal alinement of the Snipes component with the Lower Mississippi chronology will be attempted, partly by comparisons with Ford's seriation graphs (Ford, 1951 and 1952). Reference to figure 7, which shows the Lower Mississippi chronology as it is now envisioned, will be of help in following the discussion.

Baytown Plain is the basic type of the Lower Mississippi Period G–C. Principal means of differentiating the various complexes of that period is through decorated pottery types, many of which are made of Baytown paste. Unfortunately, most of these decorated types are entirely absent from the Snipes Site, which makes alinement with the Lower Mississippi Area especially difficult. Baytown Plain, being a generalized type occurring over a large area and through a long span of time, includes—or is very closely related to—the types Tchefuncte Plain, Marksville Plain, Troyville Plain, and Coles Creek Plain. Comparison of those types with Baytown-like from the Snipes Site should help determine the closest Lower Mississippi counterparts of Baytown-like and therefore tie it into the Lower Mississippi chronology.

First of all, Tchefuncte Plain can be eliminated as a possible counterpart since sand tempering and legged vessel forms, which are almost invariable features of Tchefuncte pottery, are not present at Snipes. This leaves Marksville Plain, Troyville Plain, and Coles Creek Plain as possibilities. Strictly on the basis of typology, differences among those three types are principally of vessel form. Shapes of the Snipes vessels, as indicated by four complete vessels and numerous sherds, are of generalized styles occurring in all three of the Lower Mississippi Valley periods concerned. Hardness and wall thickness, however, are considered by Ford (1951) to be of diagnostic value in distinguishing between Troyville Plain and Coles Creek Plain. Wall thickness of Troyville Plain ranges from 7 to 11 mm., with an average of 9 mm.; thickness of Coles Creek Plain is not specified, but is said to be noticeably less than that of Troyville Plain (Ford, 1951, pp. 67–68). Coles Creek Plain is harder than Troyville Plain. The Baytown-like pottery from Snipes ranges in wall thickness from 6 to 13 mm., with an average of approximately 9 mm. This compares favorably with Ford's description of Troyville Plain, but appears too thick for Coles Creek Plain. Average hardness of Baytown-like is slightly over 2.0, almost identical to the average for Troyville Plain, but too soft for Coles Creek Plain. Wall thickness and hardness, then, relate Baytown-like to Troyville

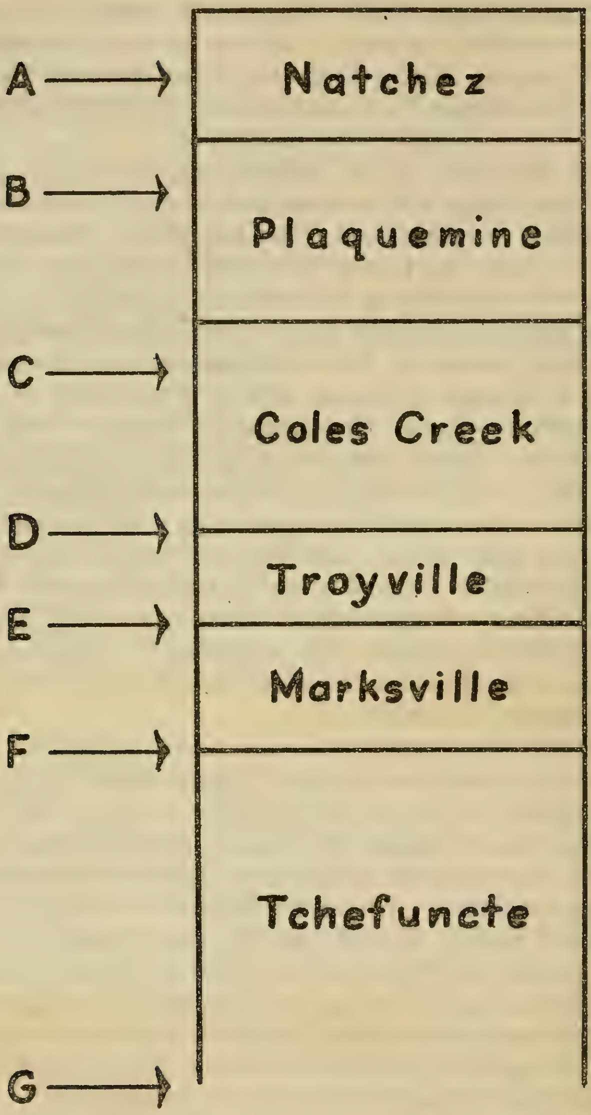

Figure 7.—Lower Mississippi chronology after Phillips, Ford, and Griffin, 1951. The letters denote arbitrary points in time that have been correlated with the archeological complexes, as indicated.

Plain, and the possibility of a direct linkage with Coles Creek Plain can be tentatively eliminated. Divorcement of Baytown-like from Coles Creek Plain is indirectly substantiated by the fact that the specimens of Coles Creek Incised from the Snipes Site are of the same approximate wall thickness and hardness as specimens of the same type in the Lower Mississippi Area. This would seem to obviate the possibility that the Baytown-like at Snipes is a local variation of Coles Creek Plain, since the Coles Creek Incised specimens conform to the Lower Mississippi specifications.

If Coles Creek Plain may be tentatively eliminated, there are left only Troyville Plain and Marksville Plain as possible counterparts of Baytown-like. Typologically there is little evidence for making a choice between the two, so it will be necessary to consider other factors. Seriation studies in the Lower Mississippi Valley (Ford, 1951) indicate that there is only a very slight temporal overlap, near time E, of the types Marksville Plain and Coles Creek Incised. This suggests that Baytown-like, which occurred with Coles Creek Incised, is perhaps too late to be related to Marksville Plain. In addition, most of the burials at Snipes were extended and contained mortuary offerings of pottery vessels, while the Marksville Period burials, in the Lower Mississippi Area, are almost invariably flexed or semiflexed and devoid of accompaniments. Thus a post-Marksville placement of the Snipes component is indicated by most of the burials, although the presence of one flexed and one semiflexed burial without offerings suggests partial survival of Marksville burial customs, and therefore implies that the Snipes component is separated from the Marksville Period by only a comparatively short span of time.

Examination of Ford's seriation graphs based on material from the Greenhouse Site (Ford, 1951) reveals that the only position where a relatively large quantity of Troyville Plain should be associated with a relatively small quantity of Coles Creek Incised is in the period E–D. The quantitative relationship of Baytown-like (if a close relationship with Troyville Plain may be assumed) and Coles Creek Incised at Snipes should fit into the seriation pattern near the middle of the period E–D, or the Troyville Period of Ford.

In summary, the paste and stylistic characteristics of Baytown-like pottery link it most closely to the type Troyville Plain of the Lower Mississippi Area. The one outstanding difference is the presence of bone tempering in approximately one-third of the Baytown-like sherds. Ford's seriation graphs show that the quantitative relationship between Coles Creek Incised and Baytown-like (or Troyville Plain by assumed projection) existing at the Snipes Site is duplicated in the Lower Mississippi Valley only near the middle of the Period E–D. Survival of flexed and semiflexed burials similar to those of the pre-E Period also implies that placement of the Snipes component should not be a great deal later than time E. Therefore it appears probable that the Lower Mississippi occupation at Snipes should be alined with the Period E–D of the Lower Mississippi chronology, probably near the middle of that period.

For purposes of convenience the above discussion was carried on in terms of temporal alinement of the Snipes component with Lower

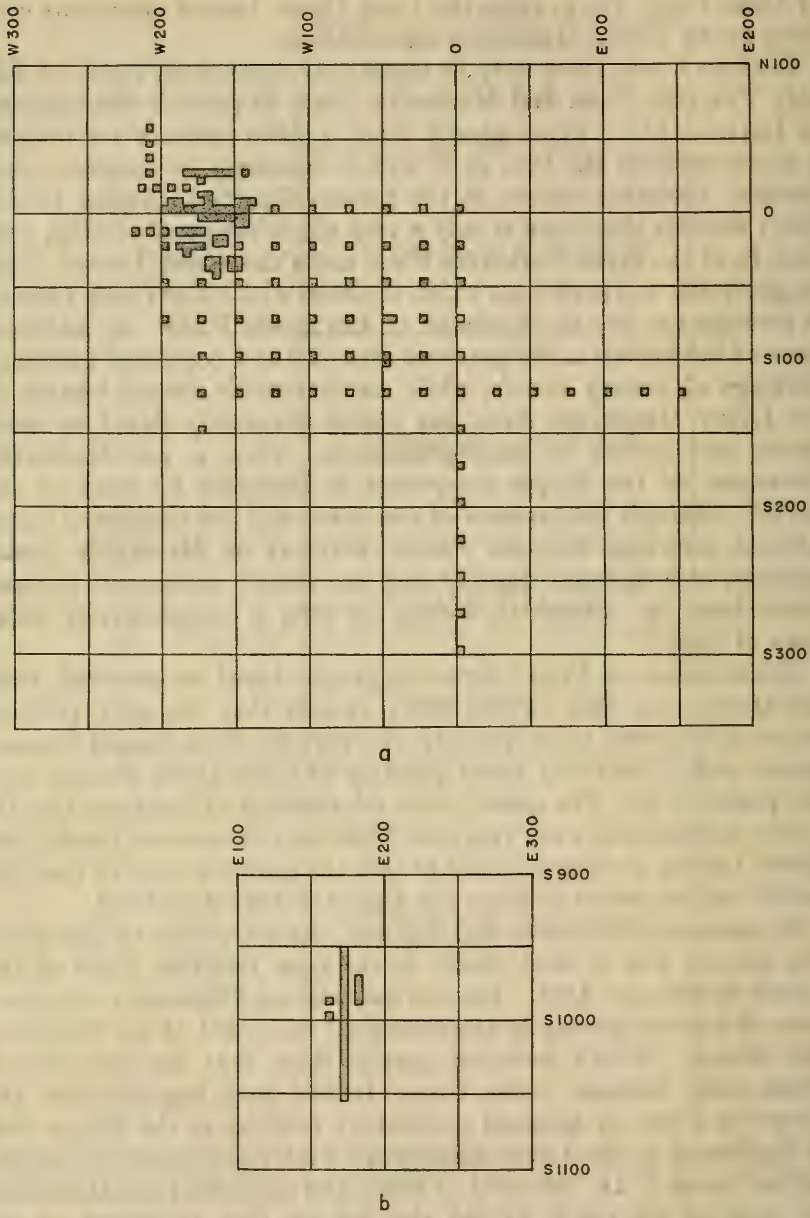
W300
W200
W100
0
E100
E200
N100
0
S100
S200
S300
a
E100
E200
E300
S900
S1000
S1100
b

FIGURE 8.—Sketch map of Sherwin Site.

Mississippi periods. It should be pointed out and emphasized, however, that close relationship with Period E–D does not necessarily mean that the Snipes component is actually *contemporaneous* with that period in the Lower Mississippi context. The Snipes Site is in an extreme marginal situation: the phenomenon of marginal survival has been well documented and may have been operative in this particular case.

THE SHERWIN SITE (41-20D5-15)

Credit for discovery of the Sherwin Site is due Ernie Hill, one of the local workmen on the Texarkana excavation crew. The Sulphur River was in flood during most of the time the excavations were in progress, so when limited time and funds made it imperative to move on from Snipes to some other site, it was necessary to pick a site lying on high ground, many of the sites located by Stephenson being inundated at that time. Mr. Hill had collected artifacts from the Sherwin Site some years previously, and he recalled it as being on a relatively high ridge near the river. He guided the writer to the site, and after cursory inspection it was decided to move the field crew there and make test excavations. Work on the Sherwin Site was begun on June 9, 1952, and continued through June 25.

The Sherwin Site is located approximately a mile west of Knight's Bluff on a long, high ridge parallel to, and about one-half mile south of, the Sulphur River. Surface indications, consisting of artifacts, bone scraps, flint chips, and flecks of charcoal were scattered over an area of some 4 or 5 acres.

A grid with the same kind of numbering system employed at Knight's Bluff and Snipes was established; that is, 5-foot squares were used as excavation units, with square designations derived from distance in feet of the coordinates from an arbitrary datum point (see fig. 8). Two rows of test pits, crossing each other at right angles, were dug across the area showing the greatest surface concentration of cultural refuse. Spaced at 25-foot intervals, the test pits were along the north-south line *0* and the east-west line *S125*. Results of the tests indicated that the northwestern part of the tested area was likely to be most productive; consequently the entire area lying between lines W0 and W175 and between lines N0 and N125 was tested systematically by sinking 5-foot test pits at 25-foot intervals. Areas around the most productive test pits were excavated as indicated in figure 8, *a*. Designations for the 5-foot squares were derived from the coordinates at their southwestern corners, and each square was carried down by arbitrary 6-inch levels, the artifacts from each such level being sacked and labeled separately. Elevation of the southwestern corner of each square was taken as surface elevation in measuring the 6-inch levels.

After excavations were well under way, it was discovered that a promising midden, masked by dense vegetation along an old fence row, lay about 1,000 feet south and 175 feet east of datum (fig. 8, *b*). A 5-foot trench, 105 feet long, was dug across this midden in a

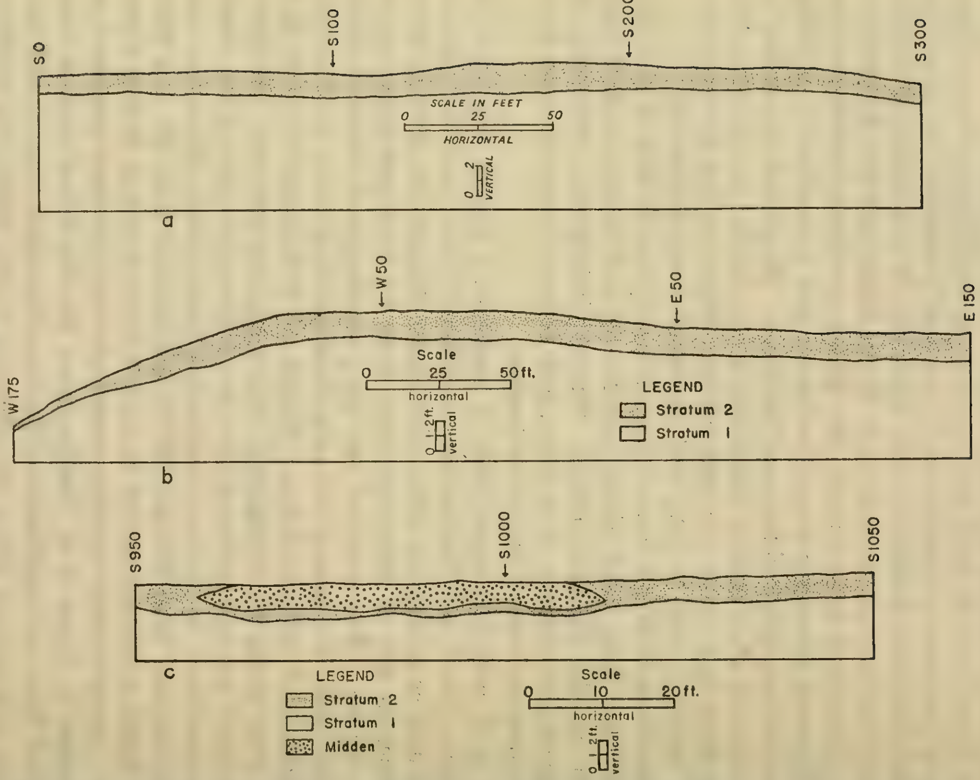
S0
S100
S200
S300
SCALE IN FEET
0
25
50
HORIZONTAL
0
2
VERTICAL
a
W175
W50
E50
E150
Scale
0
25
50 ft.
horizontal
0 1 2ft.
vertical
LEGEND
Stratum 2
Stratum 1
b
S950
S1000
S1050
c
LEGEND
Stratum 2
Stratum 1
Midden
Scale
0
10
20 ft.
horizontal
0 1 2ft.
vertical

FIGURE 9.—Profiles, Sherwin Site. *a*, North-south profile at line 0; *b*, east-west profile at line S125; *c*, north-south profile through Feature 1 at line 170.

north-south direction, and five additional 5-foot squares were opened near the trench. The midden was especially productive.

Two geological strata (fig. 9) were present over the entire site: a dense, reddish clay (stratum 1) extending to unknown depth and underlying the light, sandy surface member (stratum 2). Stratum 2 ranged in thickness from 2 or 3 inches to approximately 2 feet.

FEATURES

No house patterns or other prominent features were encountered except for the midden (Feature 1) mentioned above. Although its exact shape was not determined, the midden appeared to be roughly circular. It was approximately 20 inches thick at the center, and was of fairly uniform thickness until lensing out abruptly at the edges (see fig. 9, *c*). The uniform thickness and abrupt lensing suggest that the accumulation of refuse may have taken place within an enclosure, but no post molds or other indications of a structure were found. Only a single 5-foot trench was excavated across the midden, however, and further investigation of the peripheral area might have uncovered post molds. Unfortunately, the site had to be abandoned before such explorations could be made.

It is of interest to note that Feature 1 rested on a thin (2 to 4 inches) layer of stratum 2 sand, and that the upper portion of stratum 2 also overlay the lensed edges of the midden (see fig. 9, *c*). Apparently, therefore, stratum 2 was only a few inches thick at the time the midden began accumulating—in contrast to its present normal thickness of approximately 20 inches. The thinness of stratum 2 at that particular point may have been due to a natural depression, or may have resulted from intentional excavation. The latter possibility favors the hypothesis that Feature 1 may represent accumulation of refuse on a house floor.

BURIALS

The eight burials were similar in many respects to those at Knight's Bluff, all being extended on the back, and seven of them being oriented with heads to the southeastern quadrant of the compass. There were two burials containing two individuals each; the others were single interments.

Burial No. 1:

Location: Squares N0–W145, N0–W150, S5–145, and S5–W150.

Grave dimensions: Maximum length, 77 inches; maximum width, 39 inches; depth, 31 inches.

Type of burial: Extended, on back.

Orientation: Head to northwest.

Dimensions of skeleton: Indeterminate, owing to lack of preservation.

Completeness: Vestiges of most major bones present.

Preservation: Poor.

Burial No. 1—Continued

Associations: Small, engraved bottle (possibly Maddox Engraved, pl. 4, *h*); medium-sized jar (Pease Brushed-Incised, pl. 4, *g*) near right shoulder.

Physical observations and measurements: Adult, perhaps 50 to 60 years of age. Other observations and measurements indeterminate, due to poor preservation.

Burial No. 2:

Location: Squares S20–W160, S20–W165, S25–W160, and S25–W165.

Grave dimensions: Maximum length, 85 inches; maximum width, 60 inches; depth, 48 inches.

Type of burial: Contained two individuals, both extended on the back.

Orientation: Heads to southeast.

Dimensions of skeletons: Indeterminate owing to lack of preservation.

Completeness: Vestiges of most major bones present.

Preservation: Poor.

Associations: A badly crushed medium-sized jar (Pease Brushed-Incised) slightly above skulls; a small engraved bottle (Maddox Band Engraved (?), pl. 5, *a*) at side of right skeleton.

Physical observations and measurements: Adult. Other observations and measurements indeterminate owing to poor preservation.

Burial No. 3:

Location: Squares S100–W50 and S105–W50.

Grave dimensions: Maximum length, 60 inches; maximum width, 45 inches; depth, 42 inches.

Type of burial: Extended, on back, arms at sides.

Orientation: Head to south.

Dimensions of skeleton: Maximum length, 40 inches; maximum width, 12 inches; thickness, 8 inches.

Completeness: Traces of all major bones present.

Preservation: Poor.

Associations: A small jar (Nash Neck Banded, pl. 5, *b*) and a small, shallow saucer of unknown type (pl. 5, *c*) both at left knee. A teardrop-shaped, conch shell pendant (pl. 14, *l*), possibly an owl effigy, at neck.

Physical observations and measurements: A child, perhaps 6 or 7 years of age. Preservation too poor for measurements or other observations.

Remarks: The only burial at Sherwin with offerings other than ceramics.

Burial No. 4:

Location: Squares S35–W170, S35–W175, S40–W170, and S40–W175.

Grave dimensions: Maximum length, 66 inches; maximum width, 40 inches; depth, 39 inches.

Type of burial: Indeterminate, but assumed to be extended because of grave length.

Orientation: Head to southeast.

Dimensions of skeleton: Indeterminate owing to lack of preservation.

Completeness: Only a few bone scraps remaining.

Preservation: Very poor.

Associations: Three small vessels of unknown types—one plain, one punctated, and one punctated and appliqued (pl. 5, *d*, *e*, and *f*); one small engraved bottle of unidentified type.

Physical observations and measurements: Adult. Preservation too poor for measurements or other observations.

BURIAL No. 5:

Location: Squares S35–W150, S35–W155, S40–W150, and S40–W155.

Grave dimensions: Maximum length, 62 inches; maximum width, 38 inches; depth, 32 inches.

Type of burial: Extended, on back, arms at sides.

Orientation: Head to southeast.

Dimensions of skeleton: Maximum length, 60 inches; maximum width, 20 inches; thickness, 9 inches.

Completeness: Fragments of most major bones present.

Preservation: Skull in good condition, other bones fragmentary.

Associations: None.

Physical observations and measurements:

Sex: Female.

Age: 25 to 30 years.

Cranial measurements: Maximum length, 165 mm.; maximum width, 138 mm.; index 83.6 (brachycranic); minimum frontal diameter, 92 mm.; basion-bregma height, 141 mm.; nasal index, 50 (mesorrhinic); bigonial diameter, 95 mm.

General observations: Occipital is slightly flattened, otherwise there is no indication of deformation; a number of Wormian bones near lambdoidal suture.

Remarks: A neat, round hole in the top of the skull was probably made by a probing rod. Pot hunters in the area frequently use long, slender, pointed iron rods for locating burials by probing up to 7 or 8 feet deep in the sand. The operator can detect the presence of pottery vessels or skulls by the "snap" of the rod when a vessel or skull is punctured. Graves dug well into the dense clay strata usually underlying the surface sand of sites in east Texas can also be detected with probing rods because of the comparative softness of the grave fill. Upon locating and exposing a burial, some pot hunters remove the pottery vessels and other accompaniments, leaving the skeletons undisturbed. There is a possibility that burial No. 5 may have originally contained pottery vessels or other offerings that were removed by the pot hunter responsible for puncturing the skull.

BURIAL No. 6:

Location: N10–W170, N10–W175, and N5–W170.

Grave dimensions: Maximum length, 66 inches; maximum width, 42 inches; depth, 48 inches.

Orientation: Head to southeast.

Dimensions of skeleton: Maximum length, 60 inches; maximum width and thickness indeterminate.

Completeness: Skull and traces of long bones present.

Preservation: Very poor.

Associations: One small jar (Nash Neck Banded, pl. 5, *h*) near left shoulder; one small jar (Nash Neck Banded, pl. 5, *g*) near left knee; one small bottle (Haley Engraved, pl. 5, *i*) near right knee.

Physical observations and measurements: Adult. Preservation too poor for measurements and other observations.

BURIAL No. 7:

Location: N0–W190 and N5–W190.

Grave dimensions: Maximum length, 85 inches; maximum width, 53 inches; depth, 68 inches.

Type of burial: Extended, on back, arms at sides.

Orientation: Head to southeast.

Burial No. 7—Continued

Dimensions of skeleton: Maximum length, 73 inches; maximum width, 22 inches; thickness, 6 inches.

Completeness: Portions of most major bones present.

Preservation: Fair.

Associations: One medium-sized bottle (possibly a variant of Haley Engraved, pl. 6, *b*) at left side of skull; one plain, medium-sized jar of unidentified type (pl. 6, *a*) between knees.

Physical observations and measurements:

Sex: Male.

Age: 40 to 50 years.

Cranial measurements: Maximum length, 180 mm.; maximum width, 147 mm.; index, 81.6 (low brachycranic); minimum frontal diameter, 97 mm.; other measurements indeterminate.

General observations: Fronto-occipital deformation; prominent supraorbital ridges; deep depression at inion.

Burial No. 8:

Location: Square S150–W175.

Grave dimensions: Maximum length, 66 inches; maximum width, 20 inches; depth, 36 inches.

Type of burial: Contained two individuals, both extended on back.

Orientation: Heads to southeast.

Dimensions of skeletons: Not recorded.

Completeness: Fragments of most major bones present.

Preservation: Poor.

Associations: A small carinated bowl (pl. 6, *e*) of unidentified type near right shoulder of right skeleton; a small bottle (Higgins Engraved, pl. 6, *d*) between skulls; a small bottle (Higgins Engraved, pl. 6, *c*) between skeletons at knees.

Physical observations and measurements:

Skeleton 1 (on right side of grave):

Sex: Indeterminate.

Age: Adolescent.

Cranial measurements: Indeterminate because of poor preservation.

General observations: Possible fronto-occipital deformation.

Skeleton 2:

Sex: Indeterminate.

Age: Senile.

Cranial measurements: Indeterminate because of poor preservation.

General observations: Marked post-coronal depression, probably indicative of intentional deformation.

THE ARTIFACTS

In analyzing the 1,729 specimens recovered from the Sherwin Site, the midden (Feature 1) seemed to offer the only possibility for close intrasite association of artifact types. Except for the midden, only the sandy surface member, stratum 2, contained artifacts, and, since it was only 2 to 24 inches in thickness and had been greatly disturbed by rodents and plowing, there was little chance there of detecting any vertical stratification of artifact types. Examination of artifacts, by 6-inch levels, from the thickest portions of stratum 2 failed to show any significant differences in vertical distribution of types; neither was there any apparent localization of any of the principal types in areas outside Feature 1.

Feature 1, on the other hand, being a compact midden with no sign of having been disturbed, is considered an excellent unit for observing close association of artifact types. Since examination of artifacts from the midden, by levels, revealed no vertical stratification, the midden artifacts, as a group, can be considered as having been discarded or lost by one group of people (perhaps on the floor of a house) over a period probably not exceeding a few decades.

Table 3 not only lists all the artifacts from Sherwin, but is also designed to point out associations within Feature 1 and their relationships to the rest of the site; it includes a column for specimens found in Feature 1, a column for those found in the rest of the site, and a totals column.

CERAMICS

All the pottery types found at Sherwin were also present at Knight's Bluff except for a few sherds that may be intrusive. Some minor types found at Knight's Bluff, however, do not appear at Sherwin. They are: Cass Appliqued, Antioch Engraved, Crockett Curvilinear Incised, Belcher Engraved, Rattle Bowls, Coles Creek-like, and possibly Pennington Punctated-Incised.

Two bottles of a rather distinctive design (pl. 6, *c* and *d*) were found in burial No. 8 at Sherwin. Three sherds of similar bottles were found in Feature 1, and one sherd was recovered at Knight's Bluff. Since almost identical specimens from other sites have been noted, it is thought worthwhile to describe this bottle form briefly and to assign it a tentative type name, Higgins Engraved. Higgins seems to occur mostly, or entirely, as bottles with flat, round bases, ovoid bodies, and cylindrical necks. Paste is clay-grit tempered, brown to gray in surface color, and cores are usually dark. Fire clouding is common. The surface is smoothed, but the polish so characteristic of many Caddoan bottles is lacking. Decoration consists of two or three horizontal engraved lines encircling the vessel just below the neck, with a series of small, closely spaced triangles pendent from the bottom line. The triangles are placed with apexes pointing downward, and their interiors are either excised or roughened with closely spaced scratches. The simple design is reminiscent of the type Hickory Engraved of the Alto, Spiro, and Haley Foci (Newell and Krieger, 1949, pp. 90–91), but shape and general execution are different from Hickory.*

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*AUTHOR'S NOTE. Webb (1959, figs. 75, 77, 115, 116, and 122) illustrates several bottles from the Belcher Site that are similar in size, shape, and paste to Higgins. Some are plain, and some have a series of horizontal engraved lines (but no pendent triangles) just below the neck. The plain specimens are identified as Smithport Plain, the engraved ones as Hickory Engraved.

TABLE 3.—*Tabulation of all artifacts from the Sherwin Site, showing the number of each type found in Feature 1*

CERAMICS:	In Feature 1	Outside Feature 1	Total
Complete and restorable vessels:			
Pease Brushed-Incised (one each with burials Nos. 1 and 2)	----	2	2
Nash Neck Banded (one with burial No. 3, two with burial No. 6)	----	3	3
Haley Engraved (one with burial No. 6, and a possible variant with burial No. 7)	----	2	2
Higgins Engraved (both with burial No. 8)	----	2	2
Maddox Band Engraved (two bottles, possibly of this type, one each with burials Nos. 1 and 2)	----	2	2
Miscellaneous:			
Two small jars with punctates and brushing (plus appliqueing on one), clay-grit tempered, type unknown (both with burial No. 4)	----	2	2
One small, plain shouldered bowl with outflaring rim, clay-grit tempered, type unknown (burial No. 4)	----	1	1
One wide-mouthed jar of medium size, plain except for four short, equally spaced vertical applique strips on the upper part of the body, clay-grit tempered, type unknown (burial No. 7)	----	1	1
One small, engraved bottle with circles and interlocking scrolls of hachured bands, red pigment in lines, shell tempered, type unknown (burial No. 4)	----	1	1
One small, shallow, plain saucer, with two opposing tabs on the rim, clay tempered, type unknown (burial No. 3)	----	1	1
One small carinated bowl, with design of incised triangles and horizontal lines, clay-grit tempered, unknown type (burial No. 8)	----	1	1
Potsherds:			
Pease Brush-Incised	17	36	53
Nash Neck Banded	----	42	42
Dunkin Incised, late variant	3	8	11
McKinney Plain	----	4	4
Baytown-like	20	24	44
Foster Trailed-Incised	----	5	5
Haley Engraved	1	------	1
Higgins Engraved	3	------	3
Pennington Punctated-Incised (?)	----	2	2
Barkman Engraved	15	51	66
Barkman design, incised bowls	----	1	1
Belcher Ridged	----	2	2
Avery Engraved	----	1	1
Simms Engraved	1	15	16
Marksville Incised	1	------	1

TABLE 3.—*Tabulation of all artifacts from the Sherwin Site, showing the number of each type found in Feature 1*—Continued

CERAMICS—Continued *Potsherds*—Continued	*In Feature 1*	*Outside Feature 1*	*Total*
Plain, clay tempered, not further classified	190	744	934
Plain, bone tempered, not further classified	----	27	27
Plain, shell tempered, not further classified	1	1	2
Brushed, not further classified	24	99	123
Incised, not further classified	37	111	148
Appliqued, not further classified	3	43	46
Punctated, not further classified	1	2	3
Engraved, not further classified	27	92	119
Plain, fiber tempered	----	1	1
Clay pipes, long-stemmed thin-walled	1	2	3
Clay pipes, short-stemmed, elbow	----	1	1
CHIPPED-STONE ARTIFACTS:			
Dart points:			
Gary	----	8	8
Ellis	----	2	2
Indeterminate	1	7	8
Arrow points:			
Perdiz	----	1	1
Alba	----	1	1
Indeterminate	1	1	2
Small, crude blades	----	4	4
Small gouges	----	1	1
Heavy side scrapers	----	1	1
Flake scrapers	----	6	6
Small "picks"	----	1	1
Indeterminate worked flint	----	5	5
GROUND-STONE ARTIFACTS:			
Grinding slabs	----	2	2
Manos, unshaped	----	1	1
Hones	----	1	1
MISCELLANEOUS STONE SPECIMENS:			
Quartz crystals	----	5	5
Pitted stones	----	2	2
SHELL ARTIFACTS:			
Conch shell pendants	----	1	1
TOTAL	347	1,382	1,729

There are several sherds that do not fit any of the recognized Caddoan types. They can probably be best explained, by and large, as the result of individual experimentation or expression of personal idiosyncrasies of the potters who made them. Only one of the unusual sherds seems to be definitely extraneous—a small sherd (pl. 10, *g*) with three shallow, U-shaped, parallel, incised lines forming a zone that is flanked on both sides by areas bearing fine dentate stamping. In paste characteristics as well as decoration it appears identical to the type Marksville Stamped (Phillips, Ford, and Griffin, 1951, pp. 91–94) of the Lower Mississippi Valley.

The only ceramic artifacts other than pottery vessels are four pipe fragments. Three are of the long-stemmed, thin-walled form; the other fragment is part of an elbow pipe in the Fulton Aspect tradition.

The principal resident types at the Sherwin Site seem to be, for the most part, the same as at Knight's Bluff. They are Barkman Engraved, Pease Brushed-Incised, Nash Neck Banded, and Baytown-like. However, one of the common types at Knight's Bluff, McKinney Plain, is only poorly represented (4 sherds) at Sherwin. Otherwise there are no significant differences between relative quantities of the principal types at Knight's Bluff and Sherwin (see table 4), with the possible exception of Simms Engraved, which is more common at Sherwin. Total number of sherds is so small, however, that the difference may be of no great consequence.

The one striking incongruity is the total absence of Nash Neck Banded in Feature 1 at Sherwin (see table 3). Since the other resident types are well represented in Feature 1, this omission is disturbing and may indicate some restriction of Nash's distribution within the compass of Texarkana Focus. The restriction may reflect either temporal or cultural factors.

NONCERAMIC

Nonceramic artifacts were comparatively rare at the Sherwin Site. Since most nonceramic forms are comparable to the Knight's Bluff and Snipes specimens already described in this report, the descriptions will not be repeated here. A few specimens with no counterparts at the other two sites, however, are described briefly below.

An arrow point of widespread distribution in Texas is the Perdiz type (pl. 11, *bb*), an affiliate of the Central Texas Aspect, the Bravo Valley Aspect, the Rockport Focus, the Wylie Focus, the Henrietta Focus, the Galveston Bay Focus, and the Frankston Focus. It is a thin point with prominent shoulders and frequently has sharp barbs. Blade edges are sometimes serrated. The most striking feature is the stem, which terminates in a sharp point at the base.

One heavy side scraper (pl. 12, *m*) was found. It is of gray quartzite, weighing about 1¾ pounds, and has been chipped along one long side to form a scraping edge. One face is unchipped, flat, and smooth, and the other face is steeply convex. The scraping edge is not sharp, and may have been subjected to some battering. This implement is similar to specimens of the Edwards Plateau Aspect in central Texas.

At the neck of burial No. 3 was a conch shell pendant (pl. 14, *l*). In outline shape it closely resembles an owl, with the two suspension holes in proper position for the eyes. A few incised lines would be

TABLE 4.—*Quantitative comparison of pottery types at the Knight's Bluff and Sherwin Sites (number of specimens and percentage, of all identified specimens, are given for each type)*

	Knight's Bluff		Sherwin	
TYPE:	*Number*	*Percent*	*Number*	*Percent*
Barkman Engraved	329	0. 212	66	0. 253
Hatchel Engraved, bottles	2	. 001	1	. 004
Barkman design, incised, bowls	3	. 002	1	. 004
Bowie Engraved	1	. 001	------	-------
Simms Engraved	7	. 004	16	. 061
Baytown-like	284	. 183	44	. 168
Avery Engraved	3	. 002	1	. 004
Belcher Engraved	2	. 001	------	-------
Pease Brushed-Incised	392	. 253	55	. 211
Nash Neck Banded	142	. 092	45	. 173
Dunkin Incised, late variant	86	. 055	11	. 042
McKinney Plain	219	. 141	4	. 015
Belcher Ridged	10	. 006	2	. 008
Pennington Punctated-Incised	13	. 008	2	. 008
Cass Appliqued	24	. 015	------	-------
Foster Trailed-Incised	6	. 004	5	. 019
Crockett Curvilinear Incised	6	. 004	------	-------
Haley Engraved	15	. 010	3	. 004
Antioch Engraved	4	. 003	------	-------
Higgins Engraved	1	. 001	5	. 019
Rattle Bowls	3	. 002	------	-------
Total	1, 552	1. 000	261	1. 000

a great help toward completing the owl effect, but any lines that may have been there cannot be detected now because of the greatly disintegrated condition of the specimen. The total length is 9.4 cm., maximum width is 3.8 cm., and thickness is approximately 4 mm.

DISCUSSION AND CONCLUSIONS

The Sherwin Site evidently represents a small village occupied by a sedentary people who may be safely assumed to have been agricultural, although no actual remains of agricultural products were found. The general character of the site—its size, location, and artifact types—parallels closely the Knight's Bluff Site, only a mile away. In contrast to Knight's Bluff, however, no evidence of an earlier Archaic occupation was found at Sherwin.

The principal resident pottery types are Barkman Engraved, Pease Brushed-Incised, Baytown-like, and Nash Neck Banded. Of less frequent occurrence, but perhaps of minor resident status, are types Higgins Engraved, Simms Engraved, Dunkin Incised, late variant, McKinney Plain, Foster Trailed-Incised, and possibly Avery Engraved, Belcher Ridged, and Haley Engraved.

All of the major resident types are quantitatively comparable to the same types at Knight's Bluff. But one of the major types at

Knight's Bluff, McKinney Plain, is a very minor type at Sherwin, being represented by only four sherds. Except for the paucity of McKinney Plain, the Sherwin ceramics are remarkably similar, typologically and quantitatively, to those of Knight's Bluff; consequently, assignment of the Sherwin Site to the Texarkana Focus is indicated. Again, this necessitates modification of the Texarkana ceramic complex to fit the Sherwin situation, that is, McKinney Plain must be dropped as a major resident type.

The nonceramic artifacts are similar in general to those of Knight's Bluff, although the samples are smaller. Bogie Price, who has been collecting artifacts in the Texarkana area for many years and who is an unusually keen observer, has noticed that full-grooved hematite axes occur principally at those sites with considerable evidence of preceramic Archaic occupation. The absence of axes at Sherwin, where there was no preceramic material, tends to substantiate Price's observation, and suggests that the full-grooved axes at the Knight's Bluff Site may have derived from the Archaic occupation there. The evidence, however, is not sufficient for conclusive affirmation of Price's hypothesis.

In summary, the Sherwin Site bears a close resemblance to the Knight's Bluff Site in most respects and can be said to be primarily a component of the Texarkana Focus, with certain aberrations from what is generally considered the norm for that focus. Like the Knight's Bluff Village, the Sherwin Site has a major resident pottery type, Baytown-like, not previously recognized as a trait of the Texarkana Focus. In addition, three pottery types usually thought of as staunch Texarkana affiliates are notably scarce; they are Avery Engraved, Foster Trailed-Incised, and McKinney Plain.

On the basis of the evidence it is difficult to determine the exact chronological position of the Sherwin Site in relation to the Knight's Bluff Village. However, there are indications that Sherwin may be of slightly later date. These indications are partly negative in character and consist of the following factors: (1) Pottery types of Gibson Aspect provenience (Pennington Punctated-Incised, Crockett Curvilinear Incised, and Haley Engraved) were found at Knight's Bluff but were absent or extremely rare at Sherwin; (2) Simms Engraved is more common at Sherwin than at Knight's Bluff, perhaps reflecting a florescence of that type toward the end of the Texarkana Focus as hypothecated on data from other sites; (3) the scarcity of McKinney Plain at Sherwin (and the absence of Nash Neck Banded in Feature 1) may be an indication that abandonment of prominent Texarkana Focus types—presaging a ceramic developmental trend toward the Glendora complex—may have begun. Although patently tenuous, the argument for alinement of the Sherwin Site with the latter stages of the Texarkana Focus can be tentatively assumed in the absence of conflicting data. In view of the many parallels between Sherwin and Knight's Bluff, however, any time difference that may exist between the two must be slight, undoubtedly to be reckoned in decades.

GENERAL DISCUSSION AND CONCLUSIONS

The Knight's Bluff Village is considered to be a manifestation of what has been termed the Texarkana Focus (Krieger, 1946, pp. 206–212) with certain aberrations from the norm of that complex. The Sherwin Site is very similar in most respects to the Knight's Bluff Village, but has a few peculiarities of its own. The Snipes Site is different from both of the others, being basically affiliated with the Baytown Period of the Lower Mississippi Valley, probably with the Period E–D, or the Troyville Period, specifically. Caddoan ceramics also occurred at the Snipes Site, but exact relationship to the principal occupation could not be determined.

In outlining the outstanding problems in Caddoan Area archeology in the Introduction, it will be recalled that the problems were considered in two categories: (1) Those concerned with interrelationships of traits and complexes within the Caddoan Area itself, and (2) those regarding relationships between Caddoan Area complexes and those of other areas, especially the Lower Mississippi Valley. These two groups of problems will be discussed separately.

Intra-area problems.—To one not familiar at first hand with Caddoan Area archeology, the present literature might lead to an impression that the recognized complexes are made up of artifact types and other culture traits that occur almost invariably in closely knit, tightly integrated clusters or foci. This may have resulted in the concept that a focus consists of a consistent, distinctive trait inventory. Thus when artifact types identified with one particular focus are found with a component of another focus, the tendency is to think in terms of "influence" or "trade items." While influence or trade may be responsible in some cases, the writer feels that presence of many of these "extraneous" traits can be explained in terms of what might be thought of as "normal distribution patterns of types."

One factor that has probably contributed to the concept of restrictive, cohesive clustering of types is that *many of the Caddoan foci are predicated basically on data from one excavated site to the focus.* This is especially true of the Gibson Aspect where the Alto Focus is based on the Davis Site, the Gahagan Focus on the Gahagan Site, the Spiro Focus on the Spiro Site, and the Sanders Focus on the Sanders Site. No other major components of any of these Gibson Aspect foci have been excavated and described. Artifact types identified with the several foci, however, have been found on the surface of other sites where they tend to substantiate, in a general sort of way, the associations observed at the excavated sites. Some of the Fulton Aspect foci are founded on two or more excavated sites although the excavations in several cases were very limited, actually being more on the order of "test" excavations than anything else. But the Texarkana Focus is predicated primarily on the Hatchel Mound, the Frankston Focus on the Saunders Site, and the Belcher Focus on the Belcher Site.

Examination of the history of Caddoan Area archeology reveals that the present classification of foci came about in this manner: The few individuals or institutions who were particularly interested in Caddoan area sites, and who were fortunate enough to be financially geared for extensive excavations, naturally began their investigations with the largest, most promising sites that were readily accessible. Few comparative data were available to these pioneers, so there was little possibility of accurate analysis and interpretation. The basic areal synthesis was accomplished by Krieger subsequent to the W.P.A.-"millionaire archeologist" era, but the focal definitions have been necessarily founded, for the most part, on those previous excavations. Regional specialists such as Clarence Webb have contributed data acquired at a relatively late time, but limited resources have tended to restrict their investigations to surface collections and small-scale excavations. Data made available by the regional specialists were utilized fully in Krieger's areal synthesis, and, while they fit the focus classifications in general, the focal definitions are nevertheless based fundamentally on the larger excavated sites—with one site to a focus in many cases.

The most sensitive and diagnostic markers for identifying a focus are pottery types. In compiling the trait lists for the various foci it was observed that frequently one particular type occurred in quantity in not only one, but in two or even more focal contexts. These types were thought of as being shared by the foci concerned. Sometimes, however, a small quantity of a type identified with Focus A may be found in a component of Focus B. The tendency in these cases has been to think of the type as trade material or an expression of influence on Focus B by Focus A.

At this point I should like to back off from the McKern system and its application in the Caddoan Area and consider factors regarding the distribution of types in space and time. Axiomatic to the discussion to follow is the concept that—barring some abrupt physiographic or cultural barrier—the geographical distribution of an archeological type tends to assume a lens-shaped pattern. That is, there is normally a relatively heavy concentration in the central portion of a distribution pattern and a thinning toward the periphery. Sometimes barriers, such as an ocean, precipitous mountain ranges, or antagonistic human neighbors, may result in a distribution pattern with an abrupt termination in a zone of heavy concentration. Unless the barrier completely encompasses the distribution, however, there would normally be a lensing out of the type at the margins not restricted by the barrier.

A similar sort of distribution occurs within a particular site; that is, the greatest quantitative representation of a type will usually be found in areas of heaviest occupation within the site, with a peripheral scattering on all sides. Again, a barrier such as the confining walls of a house within a site can result in a distribution pattern of uniform thickness with abrupt margins instead of the characteristic peripheral thinning.

Thus a cross section through the areal distribution of a type would normally reveal a central zone of relatively heavy concentration with a lensing out toward the periphery. Actually there will usually be localized "hills and valleys" in such a cross section reflecting variations in regional population, local selectivity, temporal factors, etc. But these do not alter the basic lens shape of the pattern, although they compound it.

If we may accept the axiom that a normal distribution pattern is lens-shaped, it follows that one factor governing the quantity of a particular type found at a particular archeological site is the geographical position of the site. That is, a site near the center of distribution of a type would be likely to contain more specimens of that type than a site located in the marginal part of the type's distribution. In brief, the geographical location of an archeological site, with respect to the distribution patterns of the types occurring therein, is one of the determinants of type frequencies in the site.

The dimension of time also imparts a lens shape to a distribution pattern, but in a vertical direction at right angle to the geographical pattern of distribution. The inherent shape of the vertical, or temporal, distribution pattern is amply demonstrated by Ford's seriation graphs (Ford, 1951 and 1952). The quantity of a particular type in a particular site, therefore, depends on the temporal, as well as the geographical, position of the site.

The cultural phenomenon of selectivity also helps shape distribution patterns. Selectivity can only be operative, however, among peoples who have an opportunity to accept or reject a certain trait; in other words, they must be located within the geographical and temporal limits of a type's distribution if they are to have an opportunity to exercise an option. Therefore, when an archeological site is excavated, the artifact inventory will necessarily be dependent not only on the cultural factor of selectivity, but also on the extracultural factor of geographical and temporal position of the site. If the distribution patterns of two or more types should coincide both geographically and temporally, they would make up a closely knit, integrated complex. All of which leads up to the main point: Only rarely, if ever, do such coincident patterns occur in the Caddoan Area. It appears, rather, that each type (especially ceramic and arrow point types) has its own peculiar distribution in time and space, which seldom, if ever, coincides with the distribution of another type.

A good example to illustrate the factors discussed above is the situation at the Battle Site. This site was excavated in 1948 by Lynn Howard, under the supervision of Alex Krieger, on a Viking Fund grant. Excellent associations of Texarkana and Belcher Focus ceramic types were found in house floors, the types of both complexes being present in some quantity (Krieger, oral communication). This is not at all surprising in view of the more or less intermediate position of the Battle Site (in LaFayette County, Ark.) with reference to the Hatchel and Belcher Sites. In the present framework of Caddoan Area archeology, the Battle Site would be measured against the Texarkana and Belcher complexes as they have been previously defined. But the thought occurs that had the Battle Site been excavated prior to the Hatchel and Belcher Sites, we would very likely have had a "Battle Focus" comprising a mixture of traits now relegated to the Texarkana and Belcher Foci. This illustrates the point that some focal definitions in the Caddoan Area are dependent upon the fortuitous circumstance of which sites, in which geographical and temporal positions, were excavated first. This does not mean that the foci, as now envisioned, are not useful for comparative, analytical, and interpretative purposes, but does indicate that a focus should not be regarded as an integrated complex of traits that occurs with little variation from site to site. The McKern system is useful for ordering of data, but it must be kept in mind by any person employing that system of classification that a focus is an arbitrary classificatory unit that frequently is not comparable to cultural groupings such as tribes.

Distribution patterns of artifact types, design motifs, and other culture traits in the Caddoan Area (and, I suspect, in other areas) fit together in an extremely complex manner, with much overlapping of related elements in both the spatial and temporal dimensions. The writer believes that the distribution patterns of the various elements must be defined and fitted together into an area-wide structure before an accurate, detailed reconstruction of the archeology of the Caddoan Area can be attained. Many of the foci, as they are now defined, are based on one excavated site; therefore their definitive trait lists are derived largely from only one small segment that happened to include various traits. Detailed knowledge of the interrelationships between traits cannot be achieved until their total distributions are known.

Lest the foregoing be construed as a criticism of the methodology employed by the Caddoan Area specialists who formulated the present classification of aspects and foci, I should like to point out that all of them are well aware of the diverse distribution patterns of the traits and are, I think, in essential agreement with the ideas expressed above. I simply wish to set down explicitly here what has been implied but not emphasized in previous publications. Before distribution patterns can be accurately determined, a great deal of fieldwork must be done. Any inaccuracies that may exist in present concepts of Caddoan Area archeology are due to the fact that the data are meager—not to inadequate or erroneous interpretation of those meager data.

To reiterate, the present classification of Caddoan Area archeology, based on the McKern system of classification, is suitable and adequate for general ordering of data. But the foci or complexes, in most or all cases, do not consist of closely knit clusters of types and other traits: individual distribution patterns actually extend beyond the focal boundaries in many directions, both spatially and temporally, cutting across the various foci in the process. When working with the McKern system this should be kept in mind.

The Knight's Bluff and Sherwin Sites offer little data that can add to present interpretations of Caddoan Area archeology. The diversity of typological distribution patterns is borne out by the differences in quantitative representation of types at Knight's Bluff, Sherwin, and the Hatchel Site (type site of the Texarkana Focus). Quantitative and qualitative data related to those types have been herein recorded for what they are worth to future studies. The Snipes Site offers no significant data regarding intra-area problems. It will be considered, along with certain data from Knight's Bluff and Sherwin, in the following section on inter-area relationships.

Inter-area relationships.—Evidence of relationships between the Caddoan Area and other regions consists largely of pottery types identified with the Baytown Period of the Lower Mississippi Valley. No direct indication of contacts in other directions was found. The Snipes Site contained both Caddoan and Lower Mississippi ceramics, and promised at first to provide a link between complexes of the two areas. However, the site had been so badly disturbed that the exact relationship between the two ceramic traditions could not be determined. Principal occupation at the Snipes Site was apparently by Lower Mississippi affiliates closely related to the period E–D (or Troyville). Caddoan ceramics found at Snipes include both Fulton Aspect and, to a lesser extent, Gibson Aspect types, which could represent: (1) Separate occupation by Caddoan peoples, either before or after the Lower Mississippi occupation; (2) material acquired by the Lower Mississippi people from neighboring Caddoan peoples; (3) accretions actually manufactured by the Lower Mississippi people, in which event inspiration would certainly have been derived from neighboring Caddoans.

The latter of the three possibilities can be eliminated with little danger of error. The differences between Caddoan and Lower Mississippi pottery are sharp, and it is hardly credible that adoption of Caddoan techniques of pottery manufacture by aliens would have resulted in perfect duplication of the Caddoan styles. And the Caddoan sherds at Snipes are duplicates of styles in Caddoan components elsewhere. There is little evidence for deciding which of the first two possibilities is more likely. The four burials with mortuary offerings contained only Lower Mississippi pottery, which suggests that there may have been separate occupations. Certainly, however, such negative data cannot be considered as conclusive evidence. Most of the Caddoan sherds seem to be of Fulton Aspect styles, which should be too late, by all estimates, for direct association with period E–D. But being in a marginal position with respect to the distribution of the Troyville complex, there could well be a considerable time lag between the Snipes component and Troyville manifestations to the east; consequently, contemporaneity of Troyville survivals and the Fulton Aspect in the Texarkana region cannot be definitely ruled out. Contemporaneity of Gibson Aspect and Troyville is compatible with Krieger's concepts but would be out of phase with Ford's.

If the Caddoan material at Snipes was actually acquired from neighboring Caddoan peoples, it would seem probable that there should be indications of reciprocal trade of Lower Mississippi ceramics to the Caddoan peoples. There is some evidence of such trade at Knight's Bluff and, to a lesser extent, at Sherwin in the form of sherds which cannot be distinguished from the predominant plain ware at Snipes, termed Baytown-like. There is a notable absence of Coles Creek Incised sherds at Sherwin and Knight's Bluff, but Coles Creek Incised was scarce at Snipes—only 21 of the 1,135 sherds being of that type. Therefore it is conceivable that the absence of Coles Creek Incised at the two Caddoan sites could be a purely fortuitous circumstance and does not necessarily negate the possibility that the Baytown-like sherds were actually derived directly or indirectly from Lower Mississippi peoples. There is one sherd from Knight's Bluff that has been tentatively identified as Marksville Stamped. If that identification be correct, this might be another indication of contacts between Lower Mississippi and Caddoan peoples. Two sherds of Coles Creek Incised were found during excavation of the Hatchel Site, type site of the Texarkana Focus, and another was recovered from the A. P. Williams Site, a Fulton Aspect component in Titus County, Tex., attributed to the Titus Focus. All three sherds are illustrated in plate 10. These associations, especially when combined with the suggestion of similar associations at the Snipes, Knight's Bluff, and Sherwin Sites, lead inescapably to the conclusion that the Fulton Aspect must have been contemporaneous, in part, with marginal manifestations of the Baytown Period. However, temporal alinement of the Fulton Aspect—even the earliest part thereof—with the Baytown Period in the Lower Mississippi context would not fit present chronological constructs. And, even allowing a reasonable time lag for marginal Baytown Period sites such as Snipes, it would be difficult to fit a Fulton Aspect-Baytown Period alinement into Ford's chronology, although it might be squeezed into Krieger's.

In summary, the three Texarkana Reservoir sites provided no data by which chronological alinement of Caddoan and Lower Mississippi complexes can be accurately demonstrated. The two Fulton Aspect sites, Knight's Bluff and Sherwin, contain pottery that is indistinguishable from the Baytown-like pottery at the Snipes Site, and the Knight's Bluff Site yielded one sherd which may be of the type Marksville Stamped. The Snipes Site contained Caddoan pottery of both Fulton and Gibson Aspect types, but relationships to the principal occupation by Lower Mississippi peoples is obscure. Presence of Caddoan ceramics at the Lower Mississippi component (Snipes) suggests some sort of relationship between the Caddoan and Lower Mississippi Areas, but the nature of the relationship cannot be determined. These vague suggestions from the three Texarkana Reservoir sites, however, support evidence at the Hatchel and A. P. Williams sites that Baytown Period ceramic types survived into Fulton Aspect times.

Conclusions.—The Knight's Bluff Site was first occupied by peoples of the East Texas Aspect, an Archaic culture of broad distribution. Economy was probably based on hunting and gathering of vegetal products and shellfish, a type of existence that resulted in seasonal nomadism related to movements of game and harvest cycles of wild products. Neither ceramics nor agriculture had yet appeared in the area, and the bow and arrow were evidently unknown.

After the site had been abandoned by East Texas Aspect peoples, the Knight's Bluff Village occupied the same spot. The village was apparently a small, sedentary settlement of agriculturalists who built permanent houses, were expert potters, and who hunted with the bow and arrow. Well-developed religious practices are indicated by standard burial customs, including such features as placement of the body in a supine position with head toward the southeast and inclusion of mortuary offerings in the graves. Fronto-occipital head deformation was practiced by binding the heads of children. Artifact types, especially ceramics, indicate temporal and cultural alinement of the Knight's Bluff Village with the Fulton Aspect, more specifically the Texarkana Focus. Gibson Aspect traits are present, probably as survivals, suggesting a relatively early position for the component with respect to the Texarkana Focus.

The Sherwin Site seems to represent a small village of people closely related to the Knight's Bluff Village. Economy, burial customs, and type of cranial deformation were quite similar at the two villages. Trends in ceramic development and a relative scarcity of Gibson Aspect traits suggest that the Sherwin occupation dates slightly later than Knight's Bluff.

The Snipes Site represents an extension of Baytown Period peoples from the Lower Mississippi Valley into northeastern Texas.* Economy was probably similar to that of the Texarkana Focus, but head deformation was not practiced and burial customs differed from Fulton Aspect customs in that burials were inconsistent with regard to orientation and body position. Closest ties seem to be with the Troyville Period (or period E–D) of the Lower Mississippi Valley to the east. Relationship of this particular component to Caddoan peoples is uncertain, but there is evidence from other sites that marginal Baytown Period occupation of the Caddoan Area—as represented by Snipes and other related sites—was partly contemporaneous with the Fulton Aspect.

Differences in quantitative representation of pottery types at Knight's Bluff, Sherwin, and the Hatchel Site (type site of the Texarkana Focus) emphasize a general observation that a focus (as that classificatory unit has been applied in the Caddoan Area) is not necessarily a closely integrated complex of traits found with little or no variation from site to site. Actually a focus might be thought of as having very flexible limits that allow considerable variation in trait inventories at the different components of the focus. This variation is dependent not only on cultural selectivity and diffusion, but also on the geographical and temporal position of the site, and can be best interpreted, the present writer believes, in terms of typological distribution patterns.

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*AUTHOR'S NOTE. In this discussion I have referred several times to occupation of the Caddoan Area by peoples of Lower Mississippi affiliation. I do not mean to imply that there was necessarily an actual migration of people involved. Lower Mississippi traits unquestionably occur in significant quantity in a Caddoan Area; whether this is a result of migration or of diffusion is unknown at present.

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EXPLANATION OF PLATES

Plate 1

Pottery vessels. *a*, *b*, *c*. and *d* from burial 2, Knight's Bluff Site; *e*, *f*, and *g* from burial 4, Knight's Bluff Site. *a* is type Haley Engraved; *b* and *c* are type Nash Neck Banded; *d* and *f* are type Antioch Engraved; *e* is type Pease Brushed-Incised; *g* is of unidentified type. Size ¼.

Plate 2

Pottery vessels. *a* from burial 5, Knight's Bluff Site; *b*, *c* from burial 7, Knight's Bluff Site; *d* and *e* from burial 9, Knight's Bluff Site; *f* and *g* from burial 10, Knight's Bluff Site. *a*, *e*, and *g* are type Pease Brushed-Incised; *b* is type Friendship Engraved; *c* is type Antioch Engraved; *d* is type Haley Engraved, and *f* is possibly a variant of Haley Engraved. Size ¼.

Plate 3

Pottery vessels. *a*, *b*, and *c* from burial 11, Knight's Bluff Site; *d* from Knight's Bluff Site, not in a burial; *e* from the Clements Site, Cass County, Tex. *a* is type Pease Brushed-Incised; *b* is a possible variant of type Haley Engraved; *c* is an engraved bowl of unidentified type; *d* is type Nash Neck Banded; *e* is type Cass Appliqued. Size ¼.

Plate 4

Pottery vessels. *a* from burial 1, Snipes Site; *b* from burial 6, Snipes Site; *c* from burial 7, Snipes Site; *d* from burial 8, Snipes Site; *e* from burial 9, Snipes Site; *f* from Snipes Site (not in a burial); *g* and *h* from burial 1, Sherwin Site. *a*, *c*, *d*, and *e* are of Baytown-like paste; *b* is type Coles Creek Incised; *g* is type Pease Brushed-Incised; *h* is possibly type Maddox Band Engraved; *f* is unidentified Caddoan form. Size ¼.

Plate 5

Pottery vessels. *a* from burial 2, Sherwin Site; *b* and *c* from burial 3, Sherwin Site; *d*, *e*, and *f* from burial 4, Sherwin Site; *g*, *h*, and *i* from burial 6, Sherwin Site. *a* is possibly type Maddox Engraved; *b*, *g*, and *h* are type Nash Neck Banded; *i* is type Haley Engraved; *c*, *d*, *e*, and *f* are unidentified as to type. Size ¼.

Plate 6

Pottery vessels. *a* and *b* from burial 7, Sherwin Site; *c, d,* and *e* from burial 8, Sherwin Site; *f* from burial 9, Sherwin Site. *b* is probably a variant of type Haley Engraved; *c* and *d* are type Higgins Engraved; *f* is an engraved bottle of unidentified type. Size ¼.

Plate 7

Potsherds. *a* is type Hatchel Engraved; *b* is type Antioch Engraved; *c* is type Bowie Engraved; *d* and *e* are type Barkman Engraved; *f* is Barkman motif, but incised instead of engraved; *g* is type Haley Engraved; *h* is type Simms Engraved. *c* and *h* are from the Sherwin Site, all others are from the Knight's Bluff Site. Size ½.

Plate 8

Potsherds. *a* and *b* are type Pease Brushed-Incised; *c, d,* and *e* are type Nash Neck Banded; *f* and *g* are type Belcher Ridged; *h* and *i* are type Dunkin Incised, late variant. *a* and *b* are from the Sherwin Site; *g* is from the Snipes Site; the others are from the Knight's Bluff Site. Size ½.

Plate 9

Potsherds. *a* and *b* are type Cass Appliqued; *c* is type McKinney Plain; *d* is a sherd from a rattle bowl; *e* through *l* are Baytown-like. *c, i,* and *l* are from the Sherwin Site; *e, f,* and *j* are from the Snipes Site; the others are from the Knight's Bluff Site. Size ½.

Plate 10

Potsherds. *a* and *b* are type Pennington Punctated-Incised; *c* and *d* are type Crockett Curvilinear Incised; *e* is Evansville Punctate (?); *f* is Marksville Incised; *g* is Marksville Incised; *h* through *p* are Coles Creek Incised or related types of the Lower Mississippi area. *m* is from the Saunders Site; *k* and *l* are from the Hatchel Site; *g* is from the Sherwin Site; *a b, d, n,* and *o* are from the Knight's Bluff Site; *c, e, f, h, i, j,* and *p* are from the Snipes Site. Size ½.

Plate 11

Clay objects and projectile points. *a–g* are fragments of long-stemmed, thin-walled clay pipes; *h* and *i* are fragments of short-stemmed, clay elbow pipes; *j* is a fragment of clay earspool; *k–o* are dart points, type Gary; *p* and *q* are dart points, type Ellis; *r* and *s* are dart points, type Yarbrough; *t* is a Plainview (?) dart point; *u–bb* are arrow points, *u* type Maud, *v* type Bassett, *w* type Fresno, *x–aa* type Alba, *bb* type Perdiz, *c, d, g, h, k, m, z,* and *bb* are from the Sherwin Site; *a, t, x, y* and *aa* are from the Snipes Site; all others from the Knight's Bluff Site. Size ½.

Plate 12

Chipped stone artifacts. *a–d*, stemmed knives or spear points (*a, b,* and *c* found together in cache at Knight's Bluff); *e*, crude blade; *f–j*, drills and perforators; *k* and *l*, flake scrapers; *m*, heavy side scraper. *i* and *j* from Snipes Site; *m* from Sherwin Site; others from Knight's Bluff Site. Size ½.

Plate 13

Stone implements. *a*, *b*, and *c*, crude "picks"; *d*, mano; *e*, sandstone hone; *f*, sandstone ball; *g*, small grooved maul or hammerstone of sandstone; *h*, portion of keeled boatstone; *i*, greenstone celt. *i* from burial 1, Snipes Site; *c* from Sherwin Site; others from Knight's Bluff Site. Size ½.

Plate 14

Miscellaneous specimens. *a*, *b* and *c*, celts; *d*, full-grooved ax of hematite; *e*, quartz crystal; *f*, flaking implement made from deer ulna; *g*, fish bone awl; *h*, deer bone awl; *i*, deer bone bead; *j*, mussel shell pendant; *k*, perforated mussel shell; *l*, conch shell pendant. *e* and *l* from Sherwin Site (*l* from burial 3); others from Knight's Bluff Site (*j* from burial 7). Size ½; except *a–d*, ¼.

Plate 15

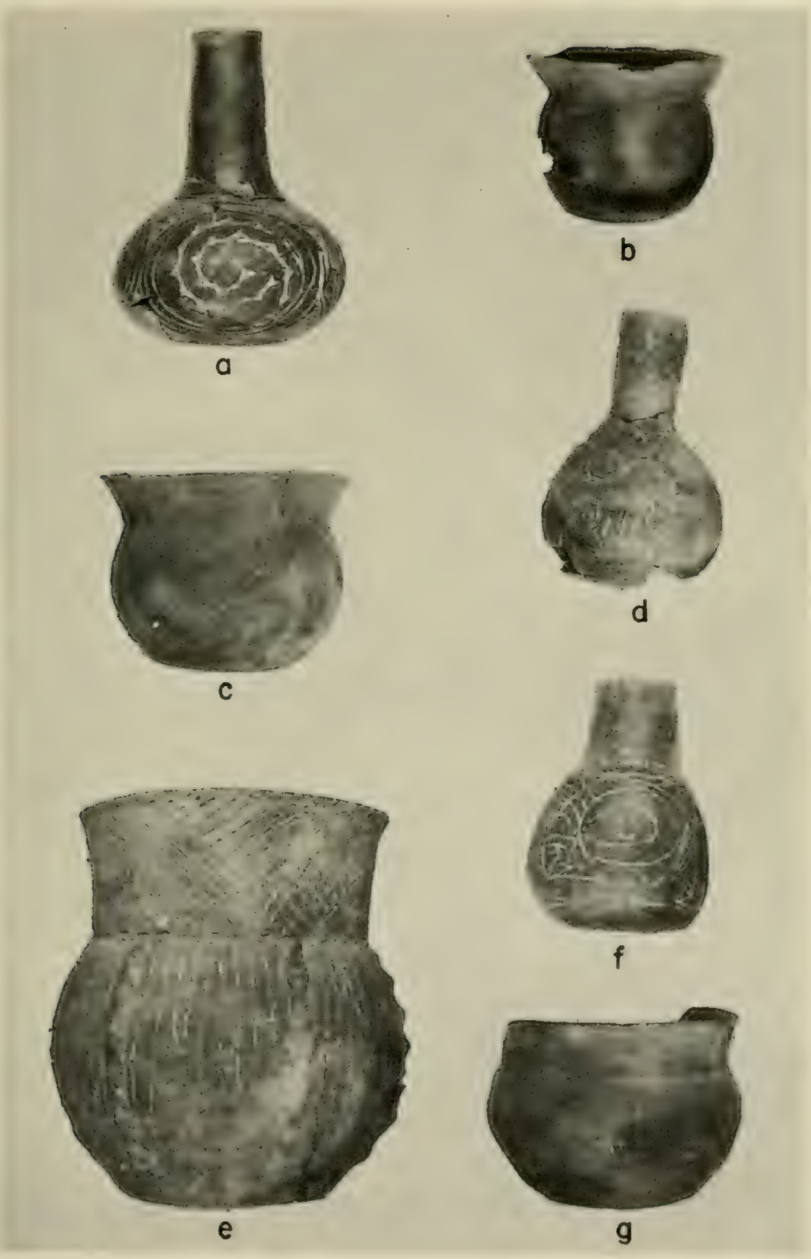
Typical burials at the Knight's Bluff, Snipes, and Sherwin Sites.

Plate 16

Front and side views of skulls. *a* and *b*, burial 4, Knight's Bluff Site; *c* and *d*, burial 5, Knight's Bluff Site; *e* and *f*, burial 6, Knight's Bluff Site.

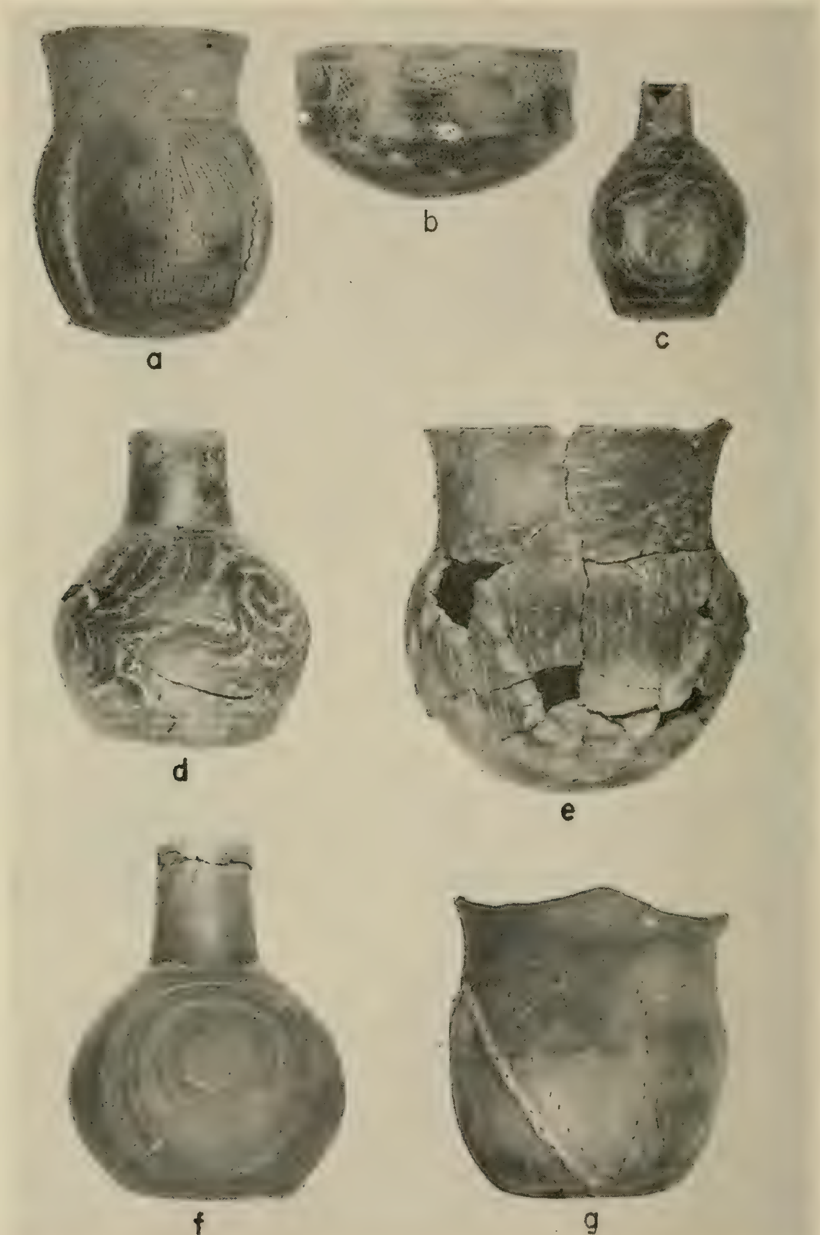
Plate 17

Front and side views of skulls. *a* and *b*, burial 9, Knight's Bluff Site; *c* and *d*, burial 3, Snipes Site; *e* and *f*, burial 7, Snipes Site; *g* and *h*, burial 5, Sherwin Site.



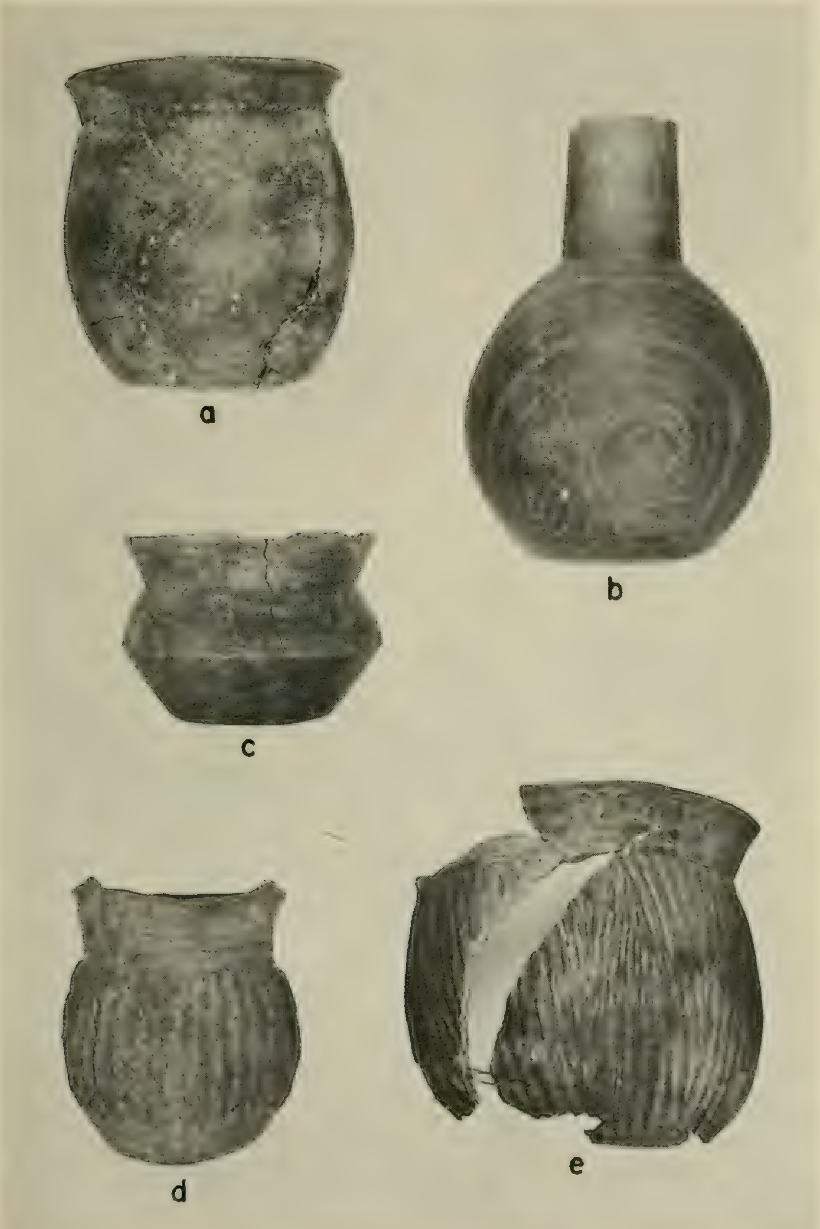
Pottery vessels. *a*, Haley Engraved; *b*, *c*, Nash Neck Banded; *d*, *f*, Antioch Engraved; *e*, Pease Brushed-Incised; *g*, unidentified.

(For explanation, see p. 76)



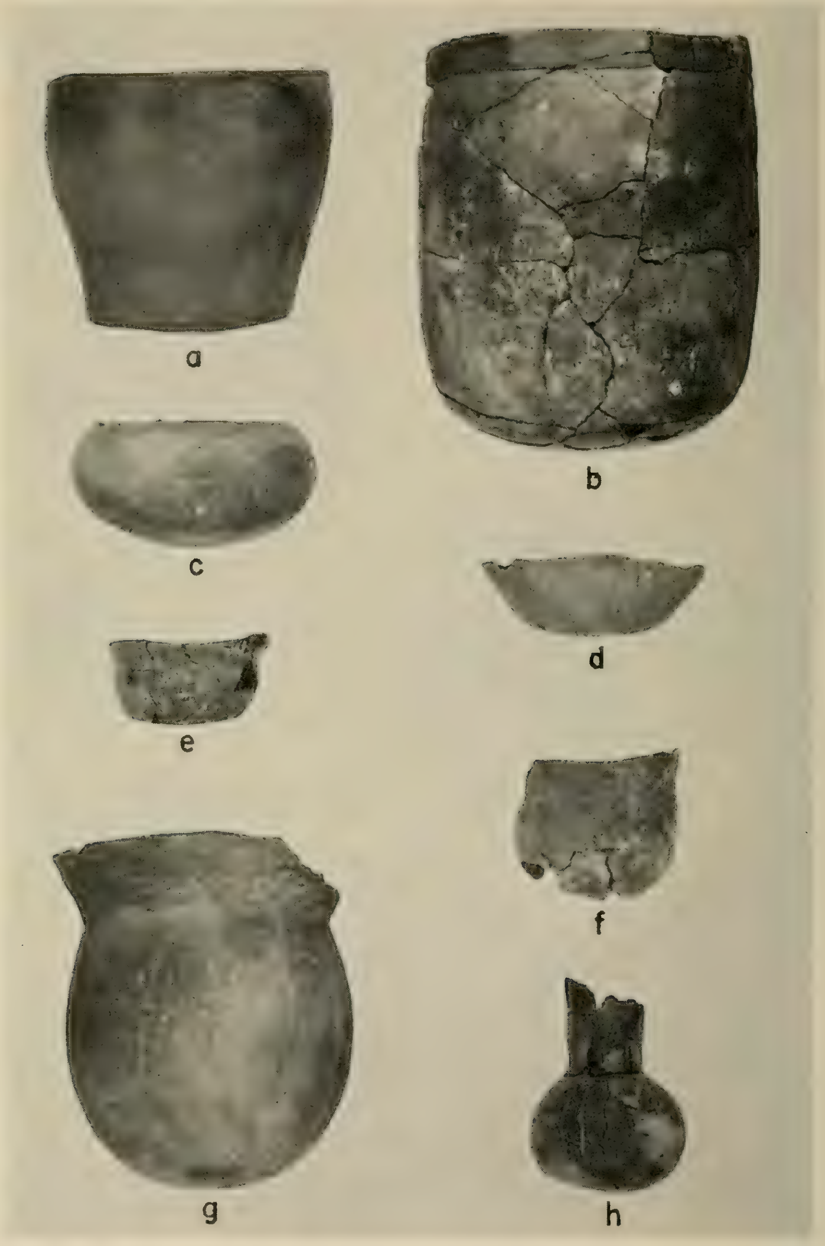
Pottery vessels. *a*, *e*, *g*, Pease Brushed-Incised; *b*, Friendship Engraved; *c*, Antioch Engraved; *d*, Haley Engraved; *f*, possibly variant of Haley Engraved.

(For explanation, see p. 76)



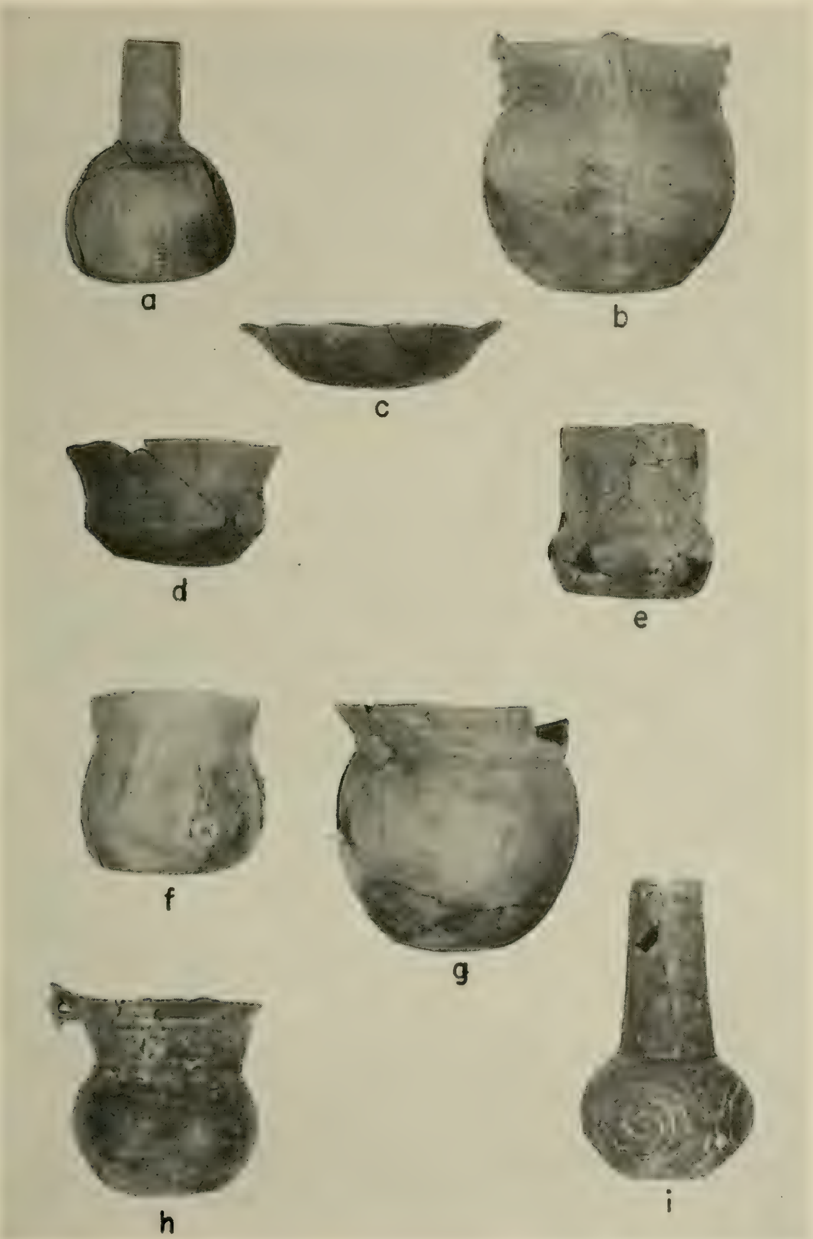
Pottery vessels. *a*, Pease Brushed-Incised; *b*, possible variant of Haley Engraved; *c*, engraved bowl of unidentified type; *d*, Nash Neck Banded; *e*, Cass Appliqued.

(For explanation, see p. 76)



Pottery vessels. *a*, *c*, *d*, *e*, of Baytown-like paste; *b*, Coles Creek Incised; *g*, Pease Brushed-Incised; *h*, possibly Maddox Band Engraved; *f*, unidentified Caddoan form.

(For explanation, see p. 76)



Pottery vessels from Sherwin Site. *a*, possibly Maddox Engraved; *b*, *g*, *h*, Nash Neck Banded; *i*, Haley Engraved; *c*, *d*, *e*, *f*, unidentified as to type.

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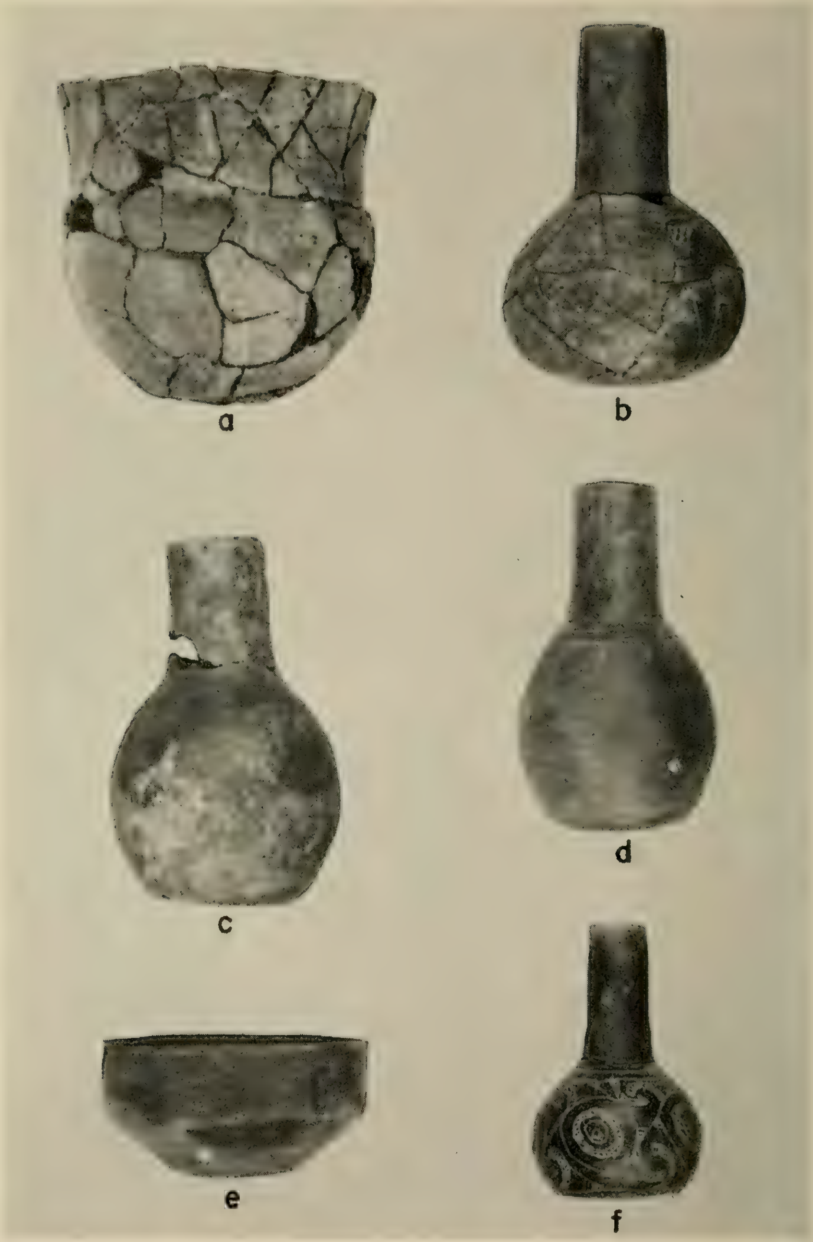

Pottery vessels from Sherwin Site. *b*, probable variant of Haley Engraved; *c*, *d*, Higgins Engraved; *a*, *e*, *f*, unidentified as to type.

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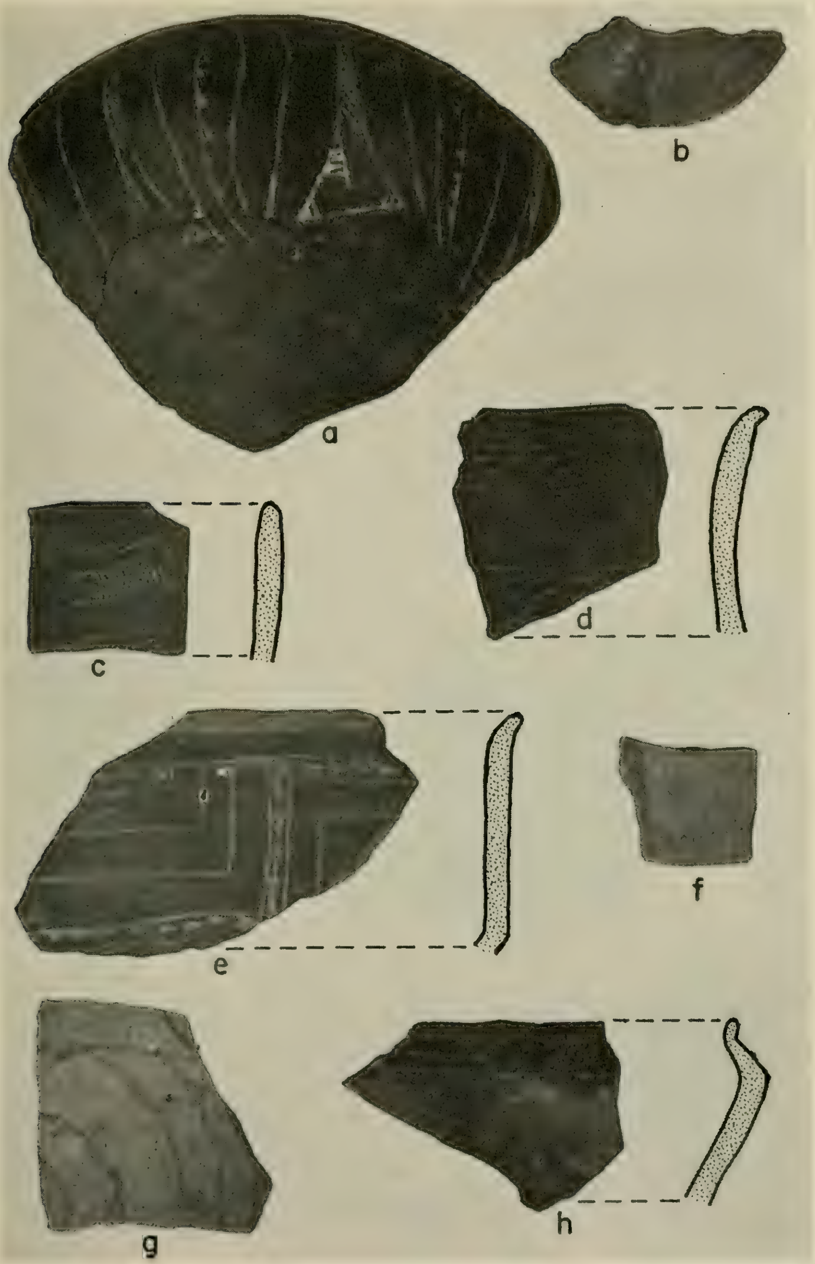
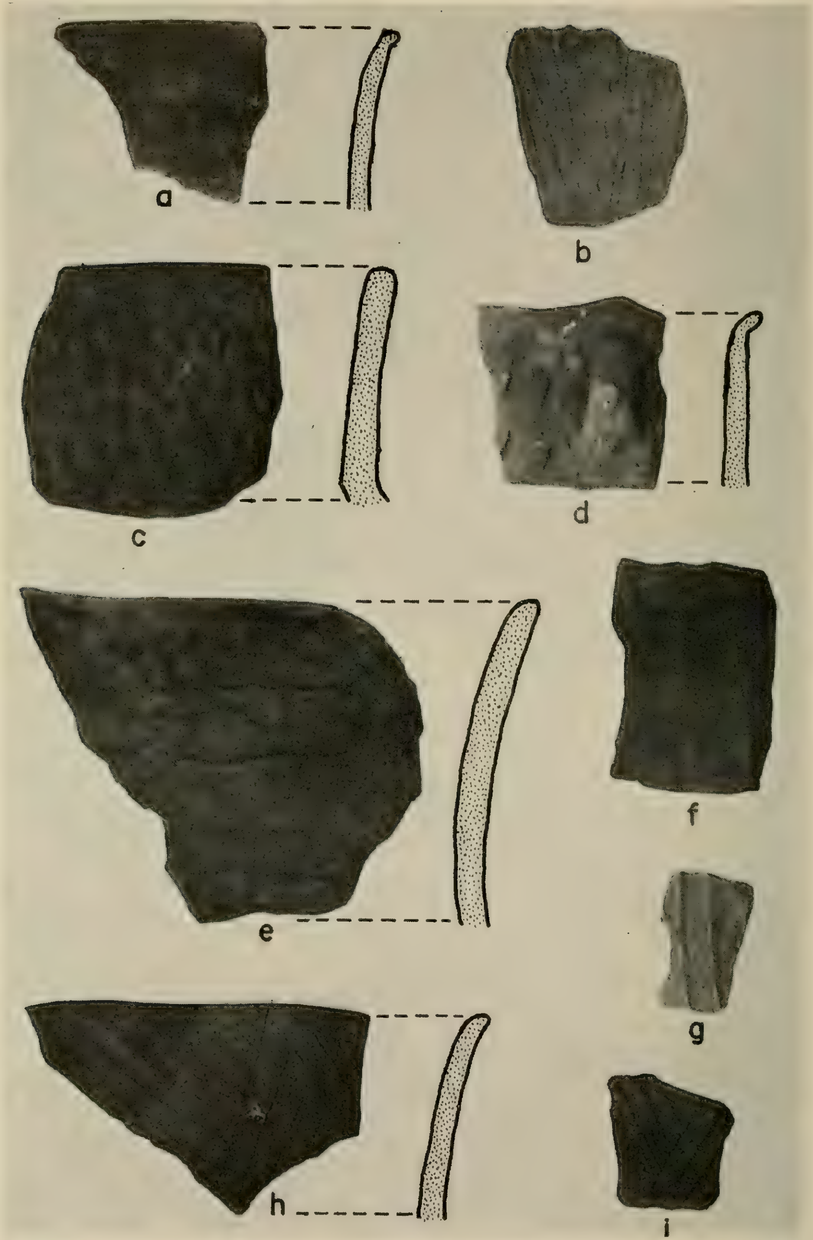


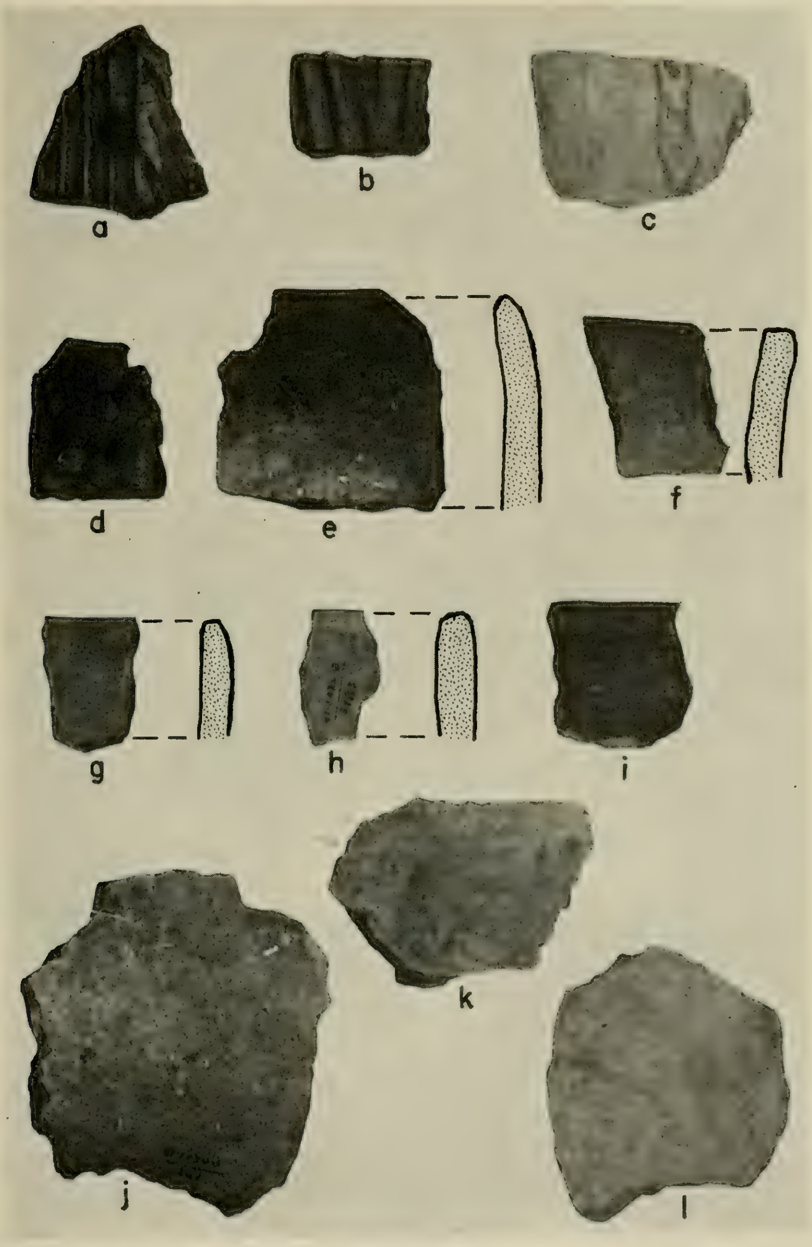
Potsherds. *a,* Hatchel Engraved; *b,* Antioch Engraved; *c,* Bowie Engraved; *d, e,* Barkman Engraved; *f,* Barkman motif, incised instead of engraved; *g,* Haley Engraved; *h,* Simms Engraved.

(For explanation, see p. 77)



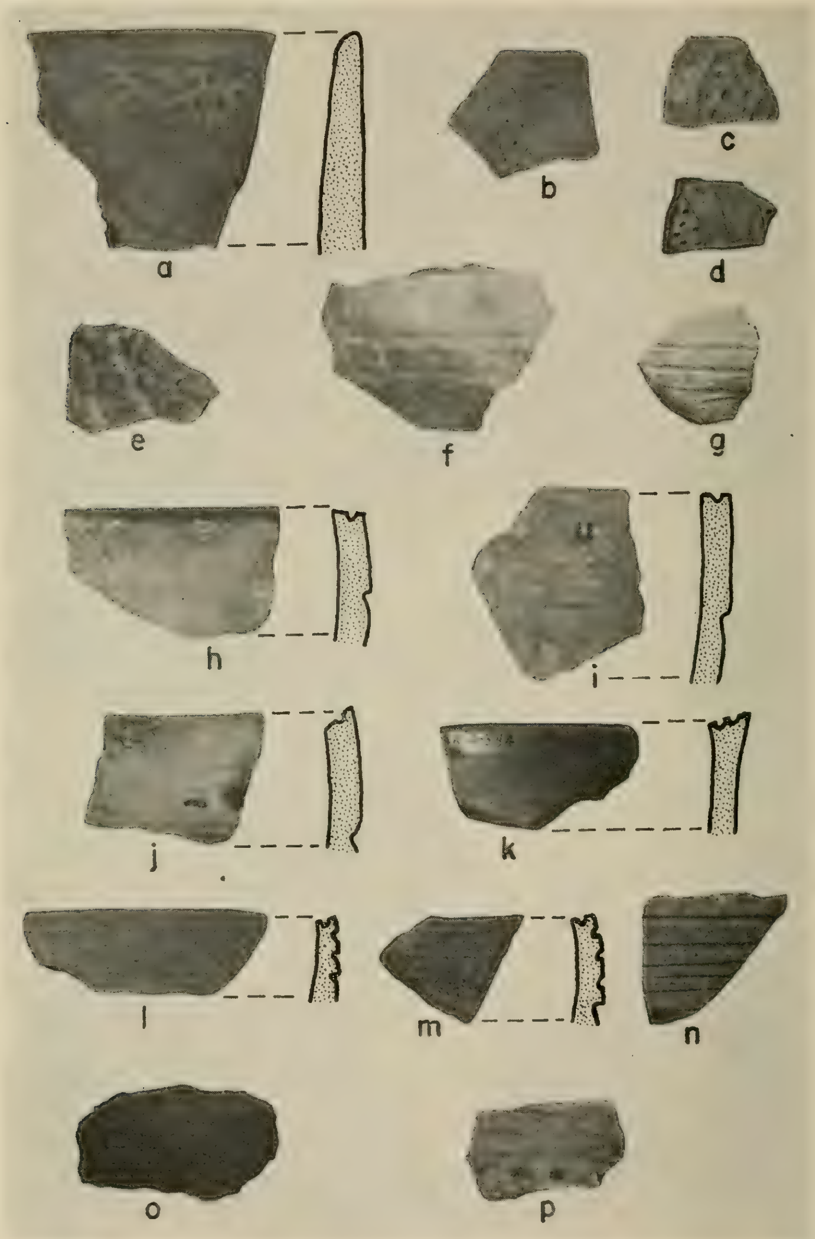
Potsherds. *a*, *b*, Pease Brushed-Incised; *c*, *d*, *e*, Nash Neck Banded; *f*, *g*, Belcher Ridged; *h*, *i*, Dunkin Incised, late variant.

(For explanation, see p. 77)



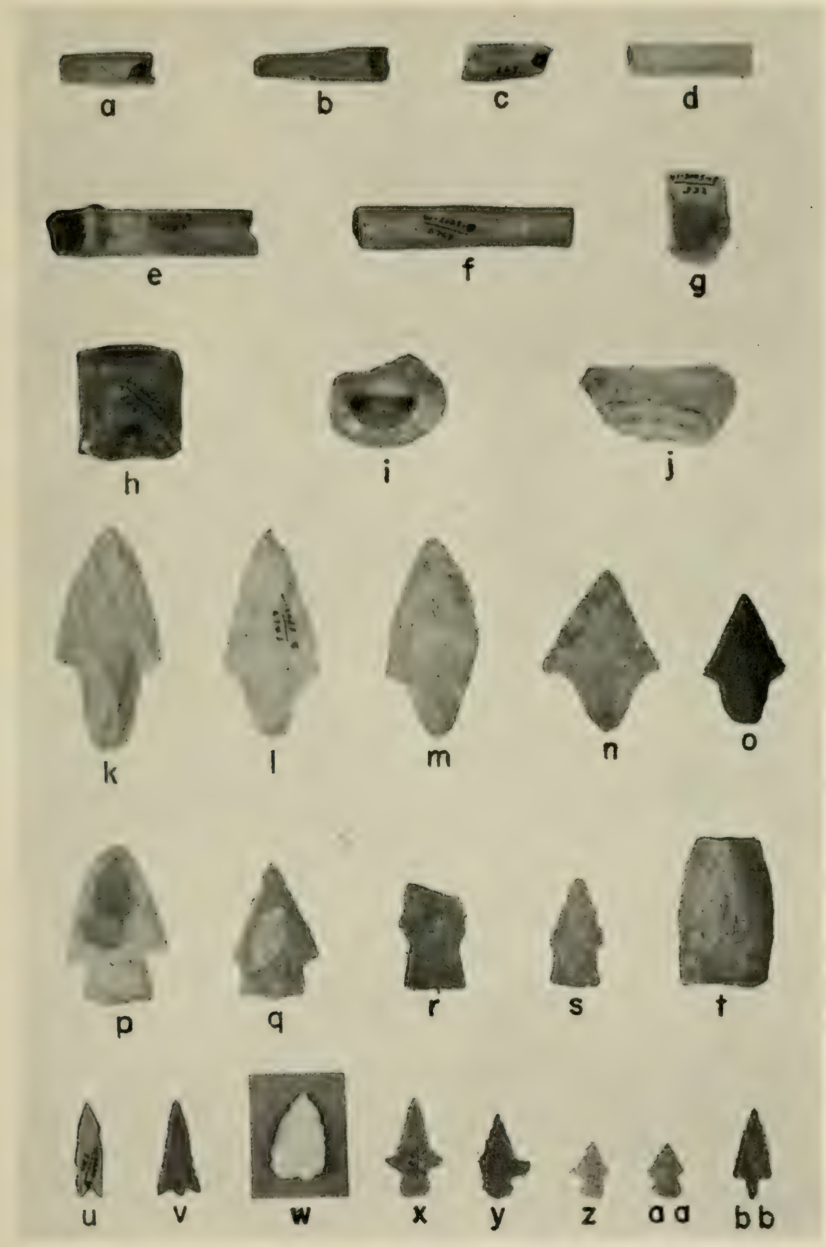
Potsherds. *a*, *b*, Cass Appliqued; *c*, McKinney Plain; *d*, sherd from a rattle bowl; *e–l*, Baytown-like.

(For explanation, see p. 77)



Potsherds. *a*, *b*, Pennington Punctated-Incised; *c*, *d*, Crockett Curvilinear Incised; *e*, Evansville Punctate (?); *f*, *g*, Marksville Incised; *h–p*, Coles Creek Incised or related types of the Lower Mississippi area.

(For explanation, see p. 77)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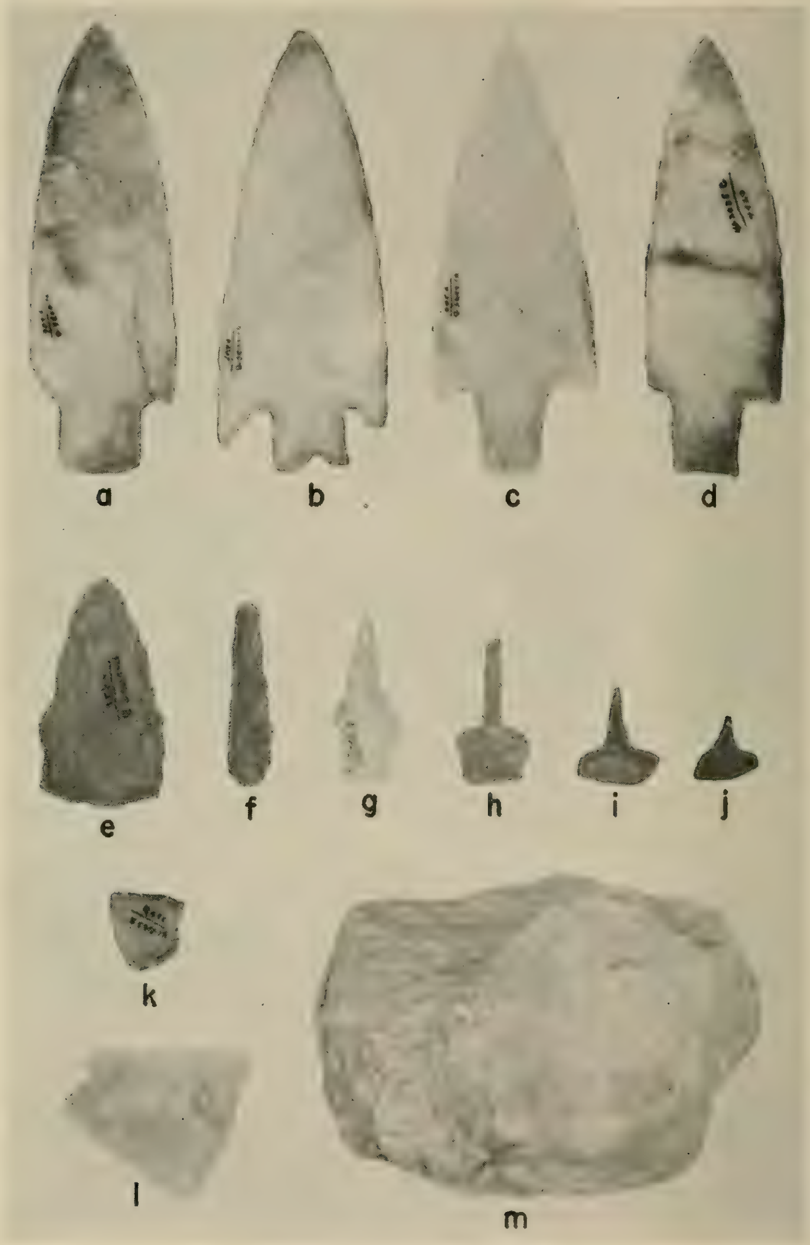
Clay objects and projectile points.

(For explanation, see p. 77)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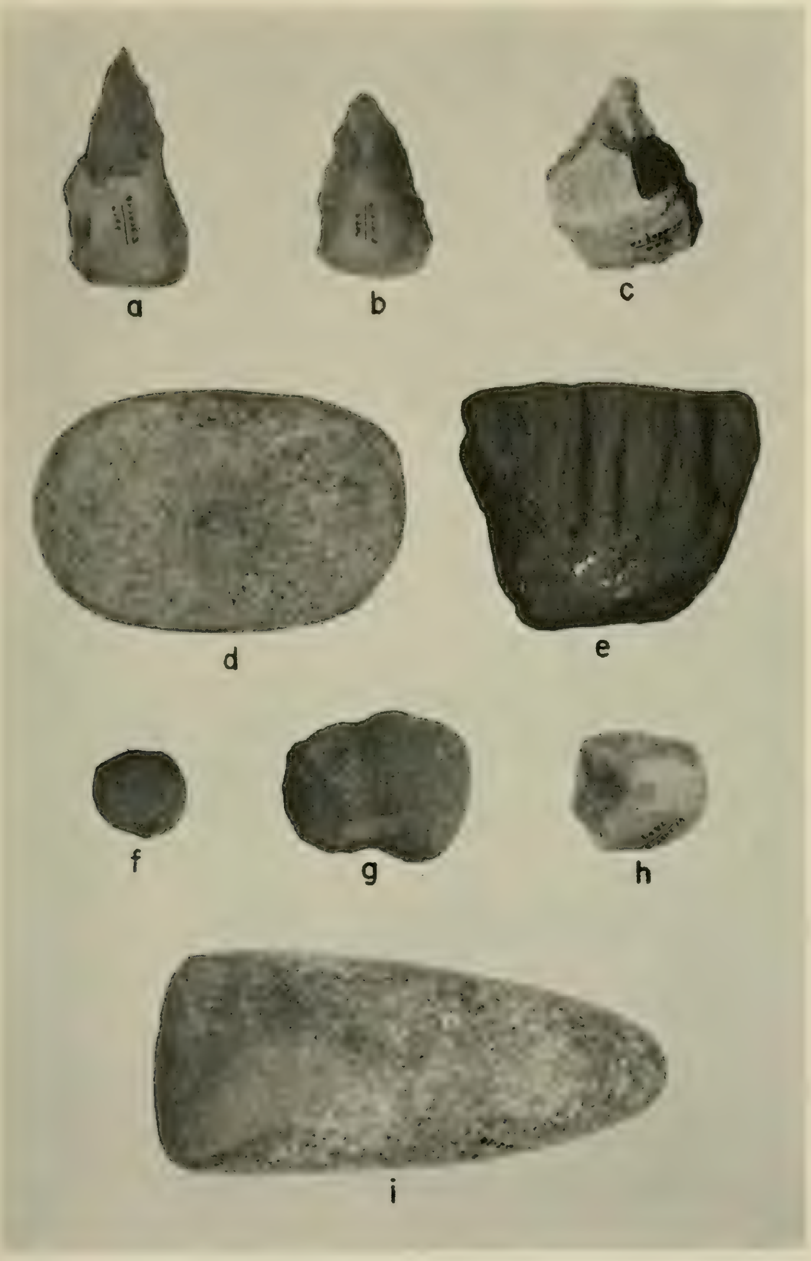
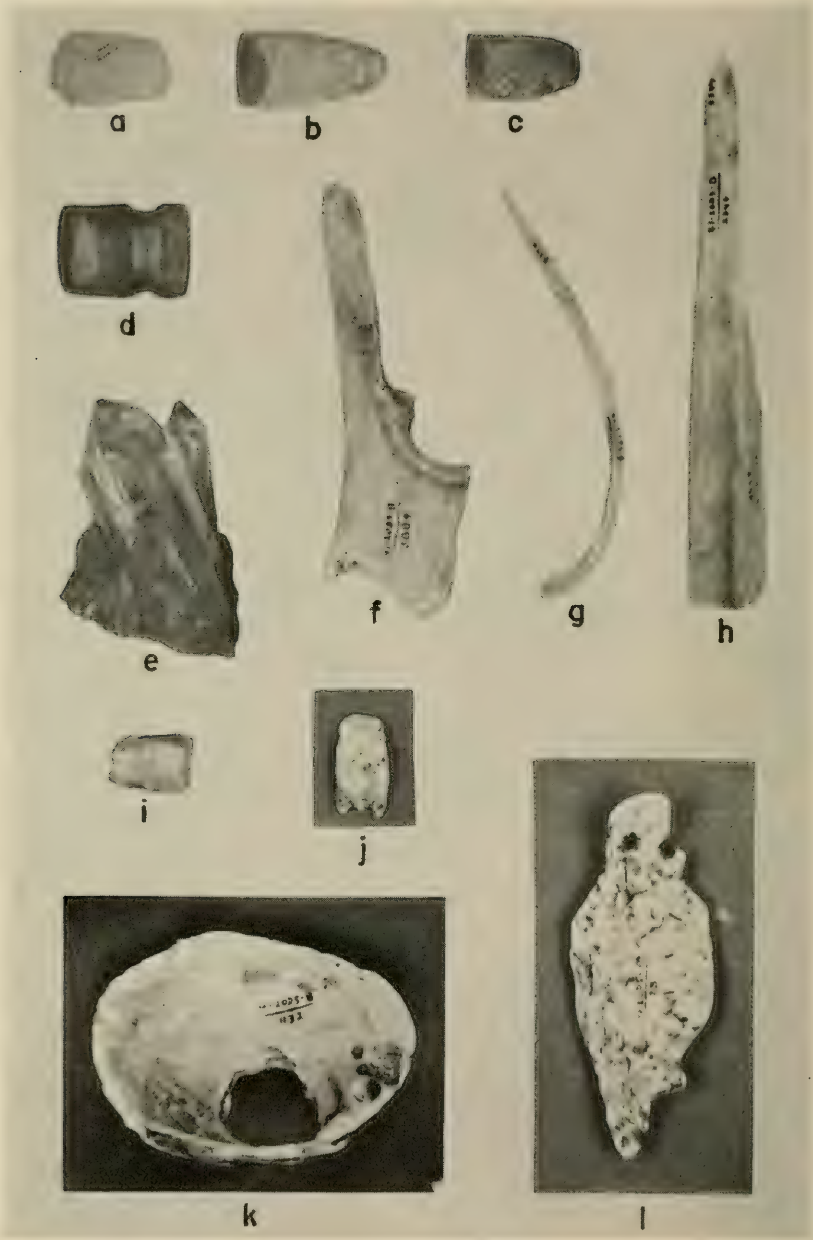
Chipped stone artifacts.
(For explanation, see p. 77)



Stone implements.
(For explanation, see p. 78)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Miscellaneous specimens.
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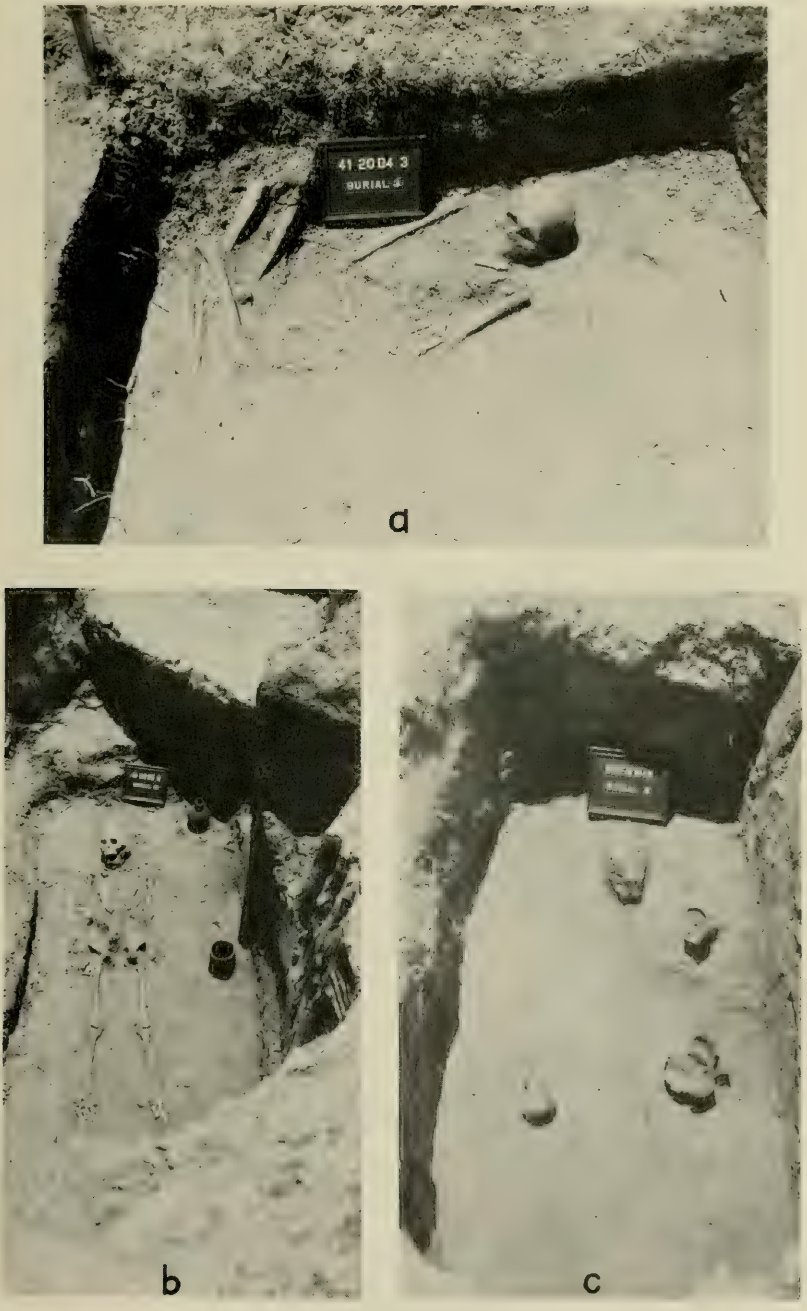
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Typical burials.
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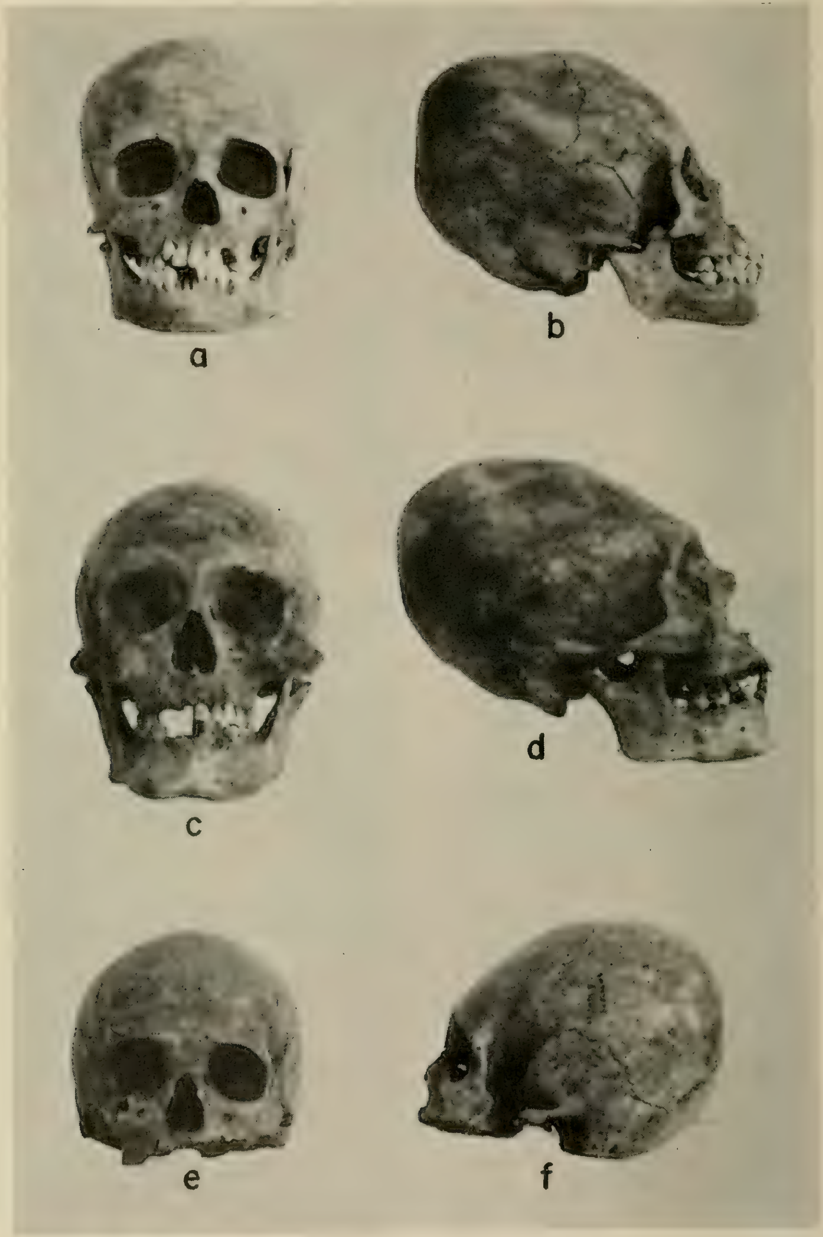

Front and side views of skulls.
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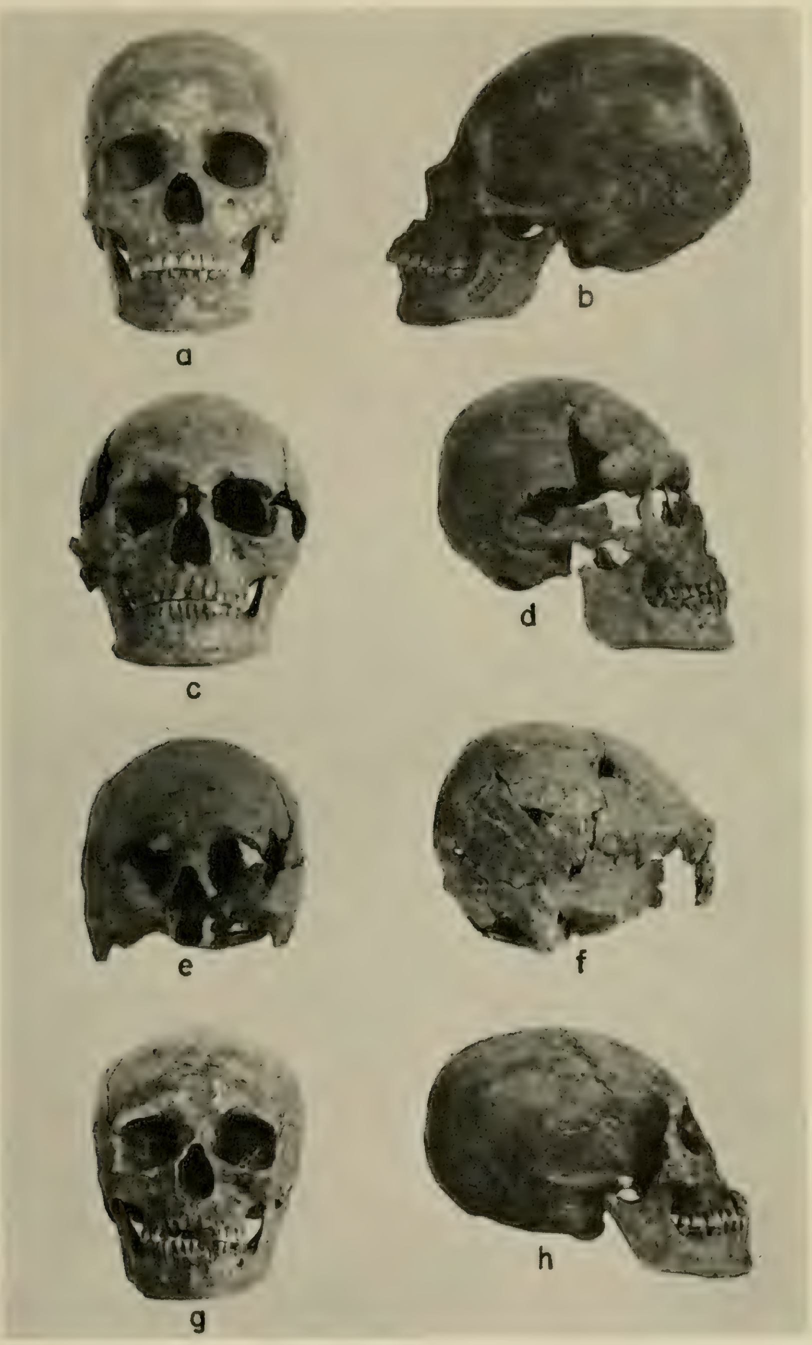

Front and side views of skulls.

(For explanation, see p. 78)

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River Basin Surveys Papers, No. 22

ARCHEOLOGICAL INVESTIGATIONS AT THE CORALVILLE RESERVOIR, IOWA

By WARREN W. CALDWELL

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ARCHEOLOGICAL INVESTIGATIONS AT THE CORALVILLE RESERVOIR, IOWA[1]

By Warren W. Caldwell

INTRODUCTION

During the winter of 1949, a preliminary reconnaissance of the south-central portion of the Iowa River valley was carried out by the River Basin Surveys, Smithsonian Institution, in an effort to determine the archeological potential of the area to be submerged by the waters of the then projected Coralville Reservoir. Temporal considerations prevented an intensive investigation of the region; however, the recovered data (Wheeler, 1949) made it obvious that further, more thoroughgoing work, was desirable.

In the autumn of 1956, with the dam nearing completion, a more adequate survey became a matter of urgency. Although the Coralville Reservoir lies outside the Missouri Basin, the Missouri Basin Project of the River Basin Surveys was able to undertake the investigations. Funds to carry on the field activities and laboratory research were transferred to the Smithsonian Institution from the appropriation for Archeological Salvage Work Outside the Missouri Basin. For reasons of administrative convenience and economy, the Smithsonian Institution administered the work through its Missouri Basin Project office in Lincoln, Nebr. The research and administrative supervision was by regular Missouri Basin Project staff members.

This report is based upon a 6-week field study carried out during September and October of 1956. An excavation crew, varying from 6 to 10 men, served faithfully in a difficult field situation. In particular, thanks should be extended to Lee G. Madison of the Missouri Basin Project, River Basin Surveys, who officiated as a competent and perceptive field assistant. The following crew members are also deserving of special mention: Richard Adams, Donald Looney, Joseph Miltner, and Raymond Buchmeyer, of Solon, Iowa; Elmer Gardner and Peter Kuipers, of Platte, S. Dak.; Tyler Bastian and Norman Barka, of Beloit College; and Richard Jensen and Carl

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[1] Revised manuscript submitted September 1957.

Hugh Jones, of the University of Nebraska and Brigham Young University, respectively.

Cooperation and kindnesses extended by the State Historical Society of Iowa, by the personnel of Macbride State Park, by Eugene Crosheck and Leo Harapat, and by Mr. and Mrs. Richard K. Adams, of Solon, are gratefully acknowledged. In addition, we feel a distinct obligation to Dr. Theodore E. White, paleontologist, National Park Service; to Dr. Norton H. Nickerson, Department of Botany, Cornell University; and to Dr. Joseph P. E. Morrison, associate curator, Division of Mollusks, U.S. National Museum, who generously provided identifications of nonartifact materials from the sites.

Prehistorically, the State of Iowa, in its strategic geographical position between the well-documented horizons of the Mississippi Valley and the increasingly significant Plains area, remains, to a degree, an archeological hiatus. The far-ranging surveys of Keyes (1942, 1951) and the more intensive analysis of Mott (1938) have provided some basis for a preliminary statement of the problem. Ruppé (1955 a, b, c) has suggested the presence of Oneota, Woodland, Archaic, and possibly Paleo-Indian elements. Local and regional analyses offered by Beaubien (1953, a, b) and Logan (1955) have added significant information, but as yet no definitive synthesis has been outlined. Data resulting from the River Basin Surveys investigations are unfortunately scanty. Comparative analysis in terms of such a small sample, is markedly tenuous. It seems desirable, nonetheless, to present a series of brief analytical statements, phrased largely in terms of suggested relationships, as a building block for more mature synthesis in the future.

THE CORALVILLE RESERVOIR: THE SETTING

The Coralville Dam and Reservoir have been constructed under provisions of Section 4 of the Flood Control Act of 28 June 1938 as a flood-control project under the immediate supervision of the Corps of Engineers, Rock Island District. The dam, an earth embankment structure 1,400 feet in length and approximately 100 feet in height, provides for a maximum pool of 492,000 acre-feet, reaching a maximum length of 41.5 river miles. The current investigations, confined substantially to the conservation pool, extended from the dam site, 5 river miles north of Iowa City, north and east to the vicinity of Curtis. All sites excavated fell within Newport Township, Johnson County, Iowa. All legal definitions are based upon county and township plats, 1953 and 1956.

The Iowa River has its origin in north-central Iowa, following a meandering southeasterly course to join the Mississippi River approximately 20 miles south of Muscatine, Iowa. In the lower or conservation pool area the river is deeply intrenched in the Iowa

Drift Plains (Raisz, 1951, map), cutting deeply into the limestone below, thus producing a pattern of high, rocky cliffs and steep bluffs. An extensive network of minor tributaries has created a series of confluent canyons and high, supervening ridges, the latter providing as much as 200 feet of relief. Above the conservation pool, the valley is characterized by large areas of low bottom lands bounded by eroded hills.

Before European cultivation much of the area was heavily forested. Even today, only the ridge tops and the more accessible bottom lands have been denuded. The river bluffs and lateral canyons support a heavy growth of oak, hickory, and maple with much underbrush and second growth resulting from sporadic logging activities.

ARCHEOLOGICAL SITES

Archeological interest in the problem area is of long standing. In the last quarter of the 19th century the aboriginal mound structures of Johnson County were the subject of great local interest and numerous but casual excavations (Davis, 1883; Thomas, 1887; Starr, 1892). Shortly after the turn of the century, intensive reconnaissance, confined to an area substantially coextensive with the projected conservation pool, resulted in a more satisfactory systematization of data (Ward, 1904). Currently, a reevaluation of the earlier work, by Dr. Robert Tidnick of the University of Iowa School of Medicine, has added materially to the factual inventory. Dr. Tidnick's unpublished data have been incorporated freely into the following presentation.

The preliminary examination of the reservoir by the River Basin Surveys located 9 archeological sites; 10 additional sites were recorded by interested amateurs (Wheeler, 1949, p. 4). The current intensive reconnaissance brought to light 10 supplementary occupation areas (fig. 10). It seems probable that still other aboriginal sites must exist in the lesser-known upper pool and on the ramifying highlands peripheral to the reservoir.

In addition to reconnaissance activities, the 1956 field party made extensive tests of three of the previously reported manifestations (13JH2, 3, and 4) and a complete excavation of one of the newly discovered sites (13JH202). Limited testing was also done at sites 13JH201, 203, 204, 205, 206, and 207. A distinct effort was made to relocate sites reported by Keyes (ibid., fig. 1), but lacking detailed legal description, success was minimal.

THE HENRY AICHER SITE (13JH1)

These mounds, known locally as the Aicher group, are situated just below the dam site (ibid., p. 5) and hence were not excavated. The earthen structures occur at the crest of a high, narrow ridge separat-

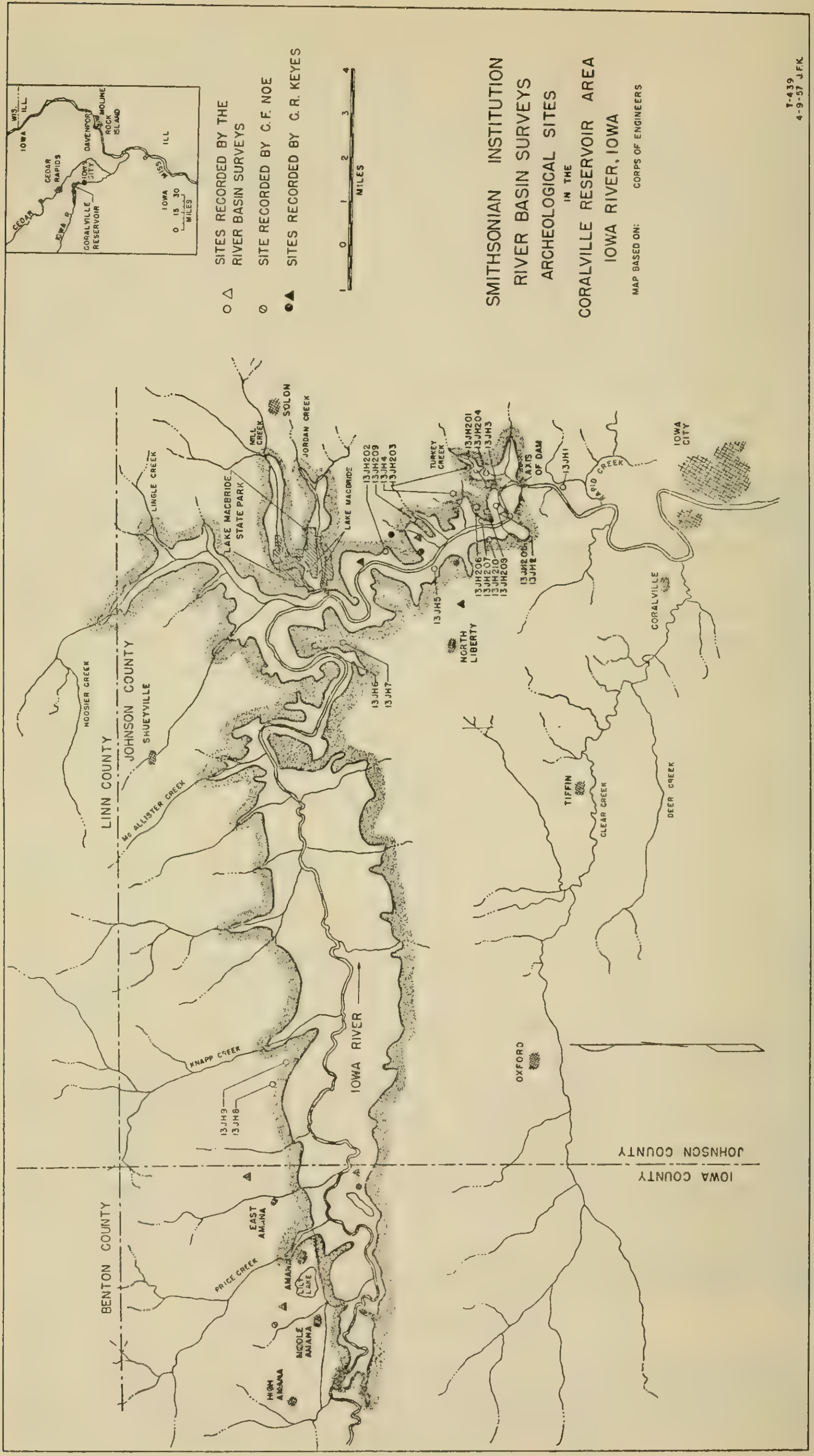
SMITHSONIAN INSTITUTION
RIVER BASIN SURVEYS
ARCHEOLOGICAL SITES
IN THE
CORALVILLE RESERVOIR AREA
IOWA RIVER, IOWA
MAP BASED ON: CORPS OF ENGINEERS
○ △ SITES RECORDED BY THE RIVER BASIN SURVEYS
⊘ SITE RECORDED BY C.F. NOE
● ▲ SITES RECORDED BY G.R. KEYES
0 1 2 3 4
MILES
T-439
4-9-57 J.F.K.
WIS.
ILL.
IOWA
CEDAR RAPIDS
CEDAR R.
IOWA R.
IOWA CITY
CORALVILLE RESERVOIR
DAVENPORT
MOLINE
ROCK ISLAND
MISS. R.
0 15 30
MILES
LINN COUNTY
JOHNSON COUNTY
BENTON COUNTY
IOWA COUNTY
HOOSIER CREEK
SHUEYVILLE
Mc ALLISTER CREEK
LINGLE CREEK
LAKE MACBRIDE STATE PARK
LAKE MACBRIDE
MILL CREEK
SOLON
JORDAN CREEK
TURKEY CREEK
AXIS OF DAM
RAPID CREEK
IOWA CITY
CORALVILLE
NORTH LIBERTY
TIFFIN
CLEAR CREEK
DEER CREEK
OXFORD
IOWA RIVER
KNAPP CREEK
PRICE CREEK
EAST AMANA
AMANA
LILY LAKE
MIDDLE AMANA
HIGH AMANA
13JH202
13JH209
13JH4
13JH203
13JH201
13JH204
13JH3
13JH1
13JH206
13JH207
13JH210
13JH209
13JH208
13JH2
13JH5
13JH6
13JH7
13JH9
13JH8

FIGURE 10.—The Coralville Reservoir—archeological sites.

ing the drainage of Rapid Creek, a minor eastern confluent, from the trench of the Iowa River. Twenty identifiable mounds are present, following in a series, NE–SW, down the constricted backbone of the ridge. Local informants indicate that previous to extensive farming activities, many more mounds were visible. Of the total group, 19 are conical in shape, ranging from 18 to 30 feet in diameter, with a maximum elevation of about 3 feet. A single low linear mound (ca. 20 feet × 50 feet) is identifiable. Except the latter, all the mounds show evidence of disturbance, usually in the form of a pit in the apex of the structure. Although most of the uncontrolled excavation is attributable to the last century, there is some evidence of recent digging. Since the site lies just outside of the reservoir, no testing was attempted.

THE CROSHECK SITE (13JH2)

The occupation area of this site is situated upon an extensive riverine flat comprising the entire north bank of the river and extending onto the highlands beyond (fig. 11). The flat has been dissected by two intermittent streams into three unequal segments, labeled, from the east: A, B, and C. In the summer of 1956 the entire area was under cultivation; however, it was possible to sample portions of A and B by excavating between the crop rows (12 test pits, each 3 feet square). Section C, in its exposed position, was deemed too badly disrupted by flood waters to warrant attention. Included within and just below the plow zone were limited quantities of chipping debris but no definitive artifacts. Surface collections are more extensive. The previous landowner, Eugene Crosheck, has assembled a substantial collection from all three topographic areas. These data are discussed briefly below. The 1956 Smithsonian party also secured a small surface sample, but limited only to field segments A and B. A detailed description is presented under "Artifacts" in this section.

Two distinct mound groups formerly existed as part of the 13JH2 site complex:

Crosheck group.—A series of four mound structures was described by Ward (1904, pp. 33–34) as situated upon the first bench above the bottom land, 300 yards north of the river. An extensive test of the designated area (fig. 11) produced only the basal fragment of an unstemmed point (No. 3 below). Stratigraphic data did not suggest the presence of mound structures. Local informants indicate that they were probably destroyed by recent cultivation.

Sweeney group.—Ward indicates another series of mounds on the next rise, about 200 yards north of the previous grouping. Three structures originally were present (ibid.). Recent cultivation has

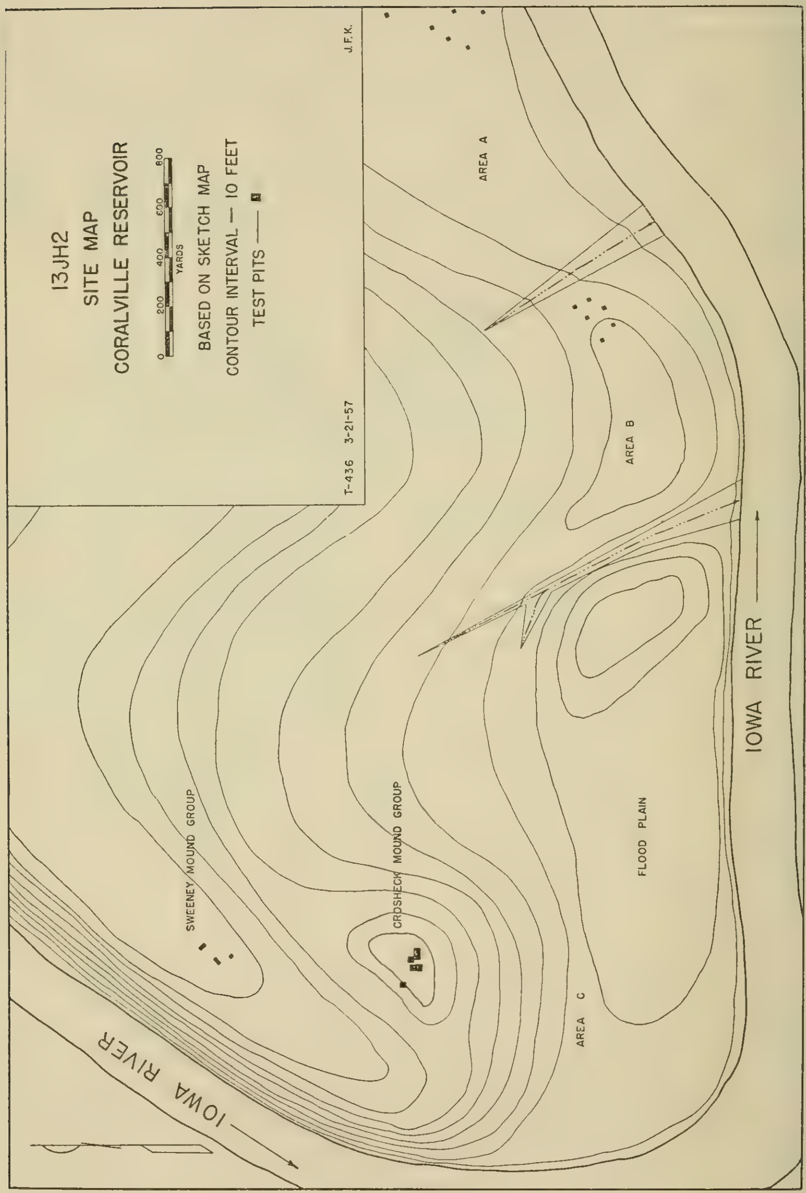
13JH2
SITE MAP
CORALVILLE RESERVOIR
0 200 400 600 800
YARDS
BASED ON SKETCH MAP
CONTOUR INTERVAL — 10 FEET
TEST PITS ——
J.F.K.
T-436 3-21-57
AREA A
AREA B
AREA C
FLOOD PLAIN
SWEENEY MOUND GROUP
CROSHECK MOUND GROUP
IOWA RIVER
IOWA RIVER

FIGURE 11.—13JH2, site map.

destroyed all but slight surface protuberances. An extensive test failed to recover any apparent details of construction, and no artifacts were secured.

ARTIFACTS

The definitive artifacts from 13JH2, with a single exception, are entirely surface finds.

1. *Leaf-shaped points with a flat or slightly concave basal termination (sample: 4).* Plate 23, *a.*
   Range of length: 63.0 mm. (one complete example).
   Range of width: 22.0–31.0 mm.
   Range of thickness: 9.0–11.0 mm.
   Cross section: Roughly biconvex.
   Technique: Percussion.
2. *Points with parallel sides and concave bases.* Basal area symmetrically tapered to a chisel edge (basal thinning). A single example (13JH2–5)[2] is characterized by an earlike basal barb (sample: 3). Plate 23, *b.*
   Range of length: 71.5 mm. (one complete example).
   Range of width: 18.0–22.0 mm.
   Range of thickness: 7.0–12.5 mm.
   Cross section: Biconvex, notably thick except in basal area.
   Technique: Percussion, well controlled.
3. *Fragment, leaf-shaped point, shallow concave base (13JH2–28).* Plate 23, *c.*
   Length: ——
   Width: 25.5 mm.
   Thickness: 6.5 mm.
   Cross section: Biconvex.
   Technique: Pressure, well controlled.
   Depth: 0.7 foot below surface, in old Crosheck mound group area.
   Typologically, this specimen closely resembles the sample described under No. 1 above, yet it is sharply separated from it in refinement of form and technique of execution.
4. *Elongate triangular point with convex base, base beveled symmetrically to a chisel edge (13JH2–20).* Plate 23, *d.*
   Length: 58.5 mm.
   Width: 15.5 mm.
   Thickness: 9.0 mm.
   Cross section: Roughly biconvex.
   Technique: Percussion, poorly controlled.
5. *Miscellaneous point fragments.*
   a. Flat base, deep corner notch (13JH2–27).
   b. Apical fragments, probably deriving from examples similar to Nos. 1, 2, or 3 above (sample: 3).
6. *"Thumb scraper," convex bit, abrupt bevel to acute scraping edge, fragmentary (13JH2–11).*
   Length: 23.5 mm.
   Width: 23.0 mm.
   Thickness: 9.5 mm.
   Cross section: Plano-convex.
   Technique: Percussion, use pressure.

---

[2] Catalog No., Missouri Basin Project, River Basin Surveys, Smithsonian Institution (trinomial site designation plus numerical designation of the individual artifact).

7. *Irregular fragments with retouched edges (sample: 4).* Plate 24, *b*.
   Cross section: Irregular flake surfaces.
   Technique: Pressure, conciously retouched.
8. *Heavy blades with tapering bodies and convex bits (sample: 3).* Plate 24, *h*.
   Range of length: 84.0 mm. (one complete example).
   Range of width: 35.0–50.0 mm.
   Range of thickness: 18.0–20.0 mm.
   Cross section: Biconvex, with strong tendency toward plano-convex.
   Technique: Percussion, pressure on bit.
9. *Fragment, crudely shaped blade, tapering body, convex irregularly beveled bit (13JH2–15).* Plate 24, *a*.
   Length: 107.5 mm.
   Width: 37.0 mm.
   Thickness: 16.0 mm.
   Cross section: Roughly tabular.
   Technique: Percussion, poorly controlled.
10. *Fragment, polished and abraded stone (13JH2–14).*
11. *Hammerstones, one or more surfaces evidencing battering (sample: 3).* Plate 25, *a*.
    Range of maximum diameter: 59.0–64.0 mm.
12. *Fragment, split and smoothed long bone, smoothed epiphysis, cancellous tissue removed, badly weathered (13JH2–26).*
    Length: 54.0 mm.
    Width: 20.0 mm.
    Thickness: 9.0 mm.

ANALYSIS

The former landowner has found a wide range of lithic materials at 13JH2, but almost entirely from the surface. Included in Mr. Crosheck's collection are many small triangular points and typical stemmed Woodland forms, with a limited occurrence of large corner-notched examples generally attributed to Hopewell. Frequent large blades also suggest the latter.

Excavation produced only a single point fragment (No. 3 above). This example is strongly reminiscent of the "type 2" form of the Illinois Valley (Cole and Deuel, 1937, p. 55). A small series of related types (see Nos. 1–3 above) were recovered by surface collecting. Superficially similar forms are frequent in the literature (ibid.; Fowler and Winters, 1956, fig. 10, I), but the most specific and significant tie is the lanceolate points labeled Nebo Hill (Shippee, 1948). Although other elements of the defined complex are not present, the 13JH2 points appear to fall well within the range of the Nebo Hill materials. The Nebo Hill type points have been noted axially along the Missouri River in Missouri, in southwestern Iowa, and in the vicinity of Manhattan, Kans. The complex remains unstratified and undated, but a relationship to early complexes of the Plains has been suggested (ibid., p. 32). The type points also resemble Archaic forms from the Illinois Valley (McGregor, 1957, p. 272).

Ceramic materials from 13JH2 have been scanty. Oneta materials have been recovered by the former landowner and probably by a University of Iowa field party, but exact data are not available. It seems likely that 13JH2 was characterized by a long continuity of occupation, possibly extending from the Archaic to the Oneota horizon. The latter is assuredly very recent, possibly historic in range. Site 13JH205 (below), immediately to the east, is characterized by a very scanty artifact assemblage, but suggests, in part, a late Oneota orientation with a temporal range extending into the historic period.

SITE 13JH3

As originally described (Ward, 1904, pp. 32–33), site 13JH3 consisted of two low mounds situated on the edge of a high bluff overlooking the east bank of the Iowa River. By 1956 only a single structure remained (34 feet diameter, 3 feet high; fig. 12). A recent trench, now substantially filled, cuts through the mound, roughly paralleling the east-west axis. A single hickory tree grows upon the extreme southern boundary of the mounded area; the decayed stump of another occurs directly north, on the opposite periphery. Rising from the mound toward the west is a gently sloping knoll, the plowed surface of which has produced some occupational debris (chipping materials, point fragments).

Despite the apparent disruption, it was hoped that a test might disclose undisturbed deposits or reveal significant details of construction. A trench, 45 feet in length, was excavated across the body of the structure, oriented to intersect the intrusive pit in a perpendicular manner (pl. 18, *a*). This trench, based on a series of 5-foot squares (0.5 foot vertical control), was excavated into the subsoil adjacent to and beneath the mound. An effort was also made to delimit the outline of the earlier, intrusive pit.

STRATIGRAPHY

Two components are present (fig. 13):

A. A basal stratum of densely compacted yellow-brown loessic clay. A white chalky stain, probably the leached products of the old soil surface, characterizes the upper portions of this stratum in squares 5 and 6.

B. Superimposed on A is a matrix of closely similar pattern, but markedly less compact and with an apparent charcoal content. Recent sod, coextensive with the adjacent field area, forms a cortical surface for the entire feature. Stratum B is separated from A by a slight unconformity.

Evidence of a premound humus is lacking; the disconformity suggests an old surface from which the sod was removed prior to mound construction. Stratum A is substantially similar to adjacent erosional and field exposures. Stratum B is also similar, but suggests

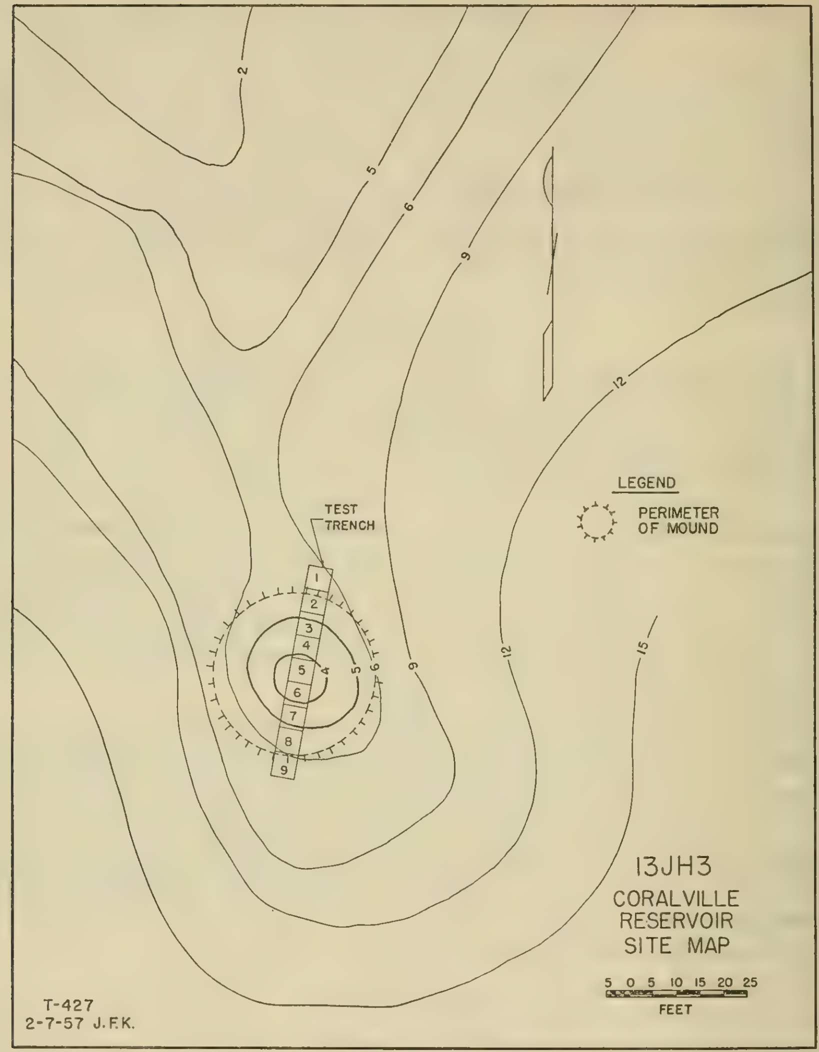
2
5
6
9
12
15
TEST TRENCH
1
2
3
4
5
6
7
8
9
LEGEND
PERIMETER OF MOUND
13JH3
CORALVILLE RESERVOIR SITE MAP
5 0 5 10 15 20 25
FEET
T-427
2-7-57 J.F.K.

FIGURE 12.—13JH3, site map.

a secondary deposition. It might thus be argued that stratum B is borrow, erected upon a stripped, subsoil surface. There is no local evidence as to the exact origin of the mounded borrow, but recent cultivation has markedly disturbed adjacent areas. The charcoal and artifact content suggest origin in an aboriginal occupation area.

Stratum B is capped by a varying thickness of humic turf. The latter is disrupted in the central portion of the mound by a firepit, the result of recent picknicking. An earlier, more extensive pit, representing evidence of the original disturbance of the site, was apparent beneath the picnic debris. The pit penetrated into the

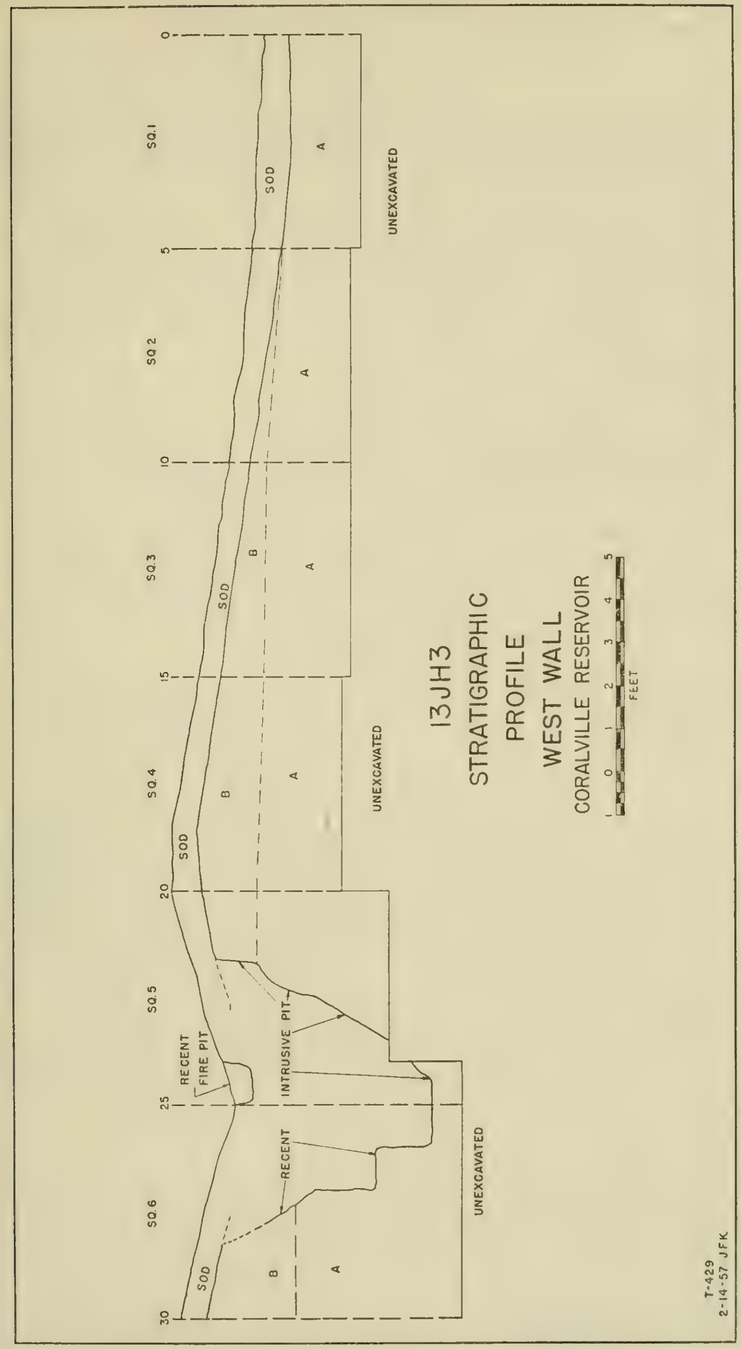
SQ.1
SQ.2
SQ.3
SQ.4
SQ.5
SQ.6
0
5
10
15
20
25
30
SOD
B
A
UNEXCAVATED
RECENT FIRE PIT
INTRUSIVE PIT
RECENT
13JH3
STRATIGRAPHIC
PROFILE
WEST WALL
CORALVILLE RESERVOIR
1 0 1 2 3 4 5
FEET
T-429
2-14-57 JFK

FIGURE 13.—13JH3, stratigraphic profile.

leached area of stratum A. Excavations carried beneath the intrusion provided no evidence of cultural material.

ARTIFACTS

All material objects were included within the mounded fill (stratum B); there is no evidence of any artifacts associated with a disrupted burial or burials.

1. *Pottery: Thin, cord-marked body sherds (sample: 2).* Plate 27, *a*, *b*.
    Thickness: 5.5 mm.
    Temper: Fine sand, rounded quartzite pebble inclusions.
    Color: Dark gray.
    Depth: 0–1.0 feet below surface, squares 7, 8.
2. *Miscellaneous projectile point fragments.*
    a. Apical fragment.
        Depth: 0.5–1.0 foot below surface, square 3.
    b. Amorphous body fragment.
        Depth: 1.5–2.0 feet below surface, square 4.
    c. Basal fragment, side or corner notches, convex base.
        Depth: 0.5–1.0 foot below surface, square 7.
3. *Miscellaneous blade fragments (sample: 2).*
    Depth: 0.5–1.0 foot below surface, squares 1, 3.
4. *Fragment, thumb scraper (13JH3–9).*
    Depth: 0.5–1.0 foot below surface, square 3.
5. *Miscellaneous flakes with retouched areas (sample: 8).*
    Depth: 0.5–2.0 feet below surface, squares 2–7.
6. *Tabular limestone inclusions.*

ANALYSIS

The artifact sample obtained from the mound structure 13JH3 is minute and largely inconclusive. The large identifiable basal fragment of a projectile point merely suggests a "typical" Woodland form. The two body sherds are somewhat more definitive. They are quite similar, although somewhat more refined in execution, to the dominant ware deriving from Site 13JH202. The latter has been related to the Lake Michigan grouping (below).

On the comparative level, the mound structure itself is equally insignificant. The following traits are tentatively offered as characteristic:

Conical form
Turf probably removed prior to construction
Constructed as a single component
Mound body probably composed of occupation debris
No burial evident
Limestone inclusion

A consideration of these generalized traits will follow in the discussion of Site 13JH4.

SITE 13JH4

Site 13JH4 consists of seven conical and a single linear mound situated upon a densely forested ridge top formed by the headward cutting of the northern and southern forks of an unnamed eastern affluent of the Iowa River (fig. 10). The structures range down the ridge top following a northeast-southwest direction (fig. 14). The mounds vary from 20 to 32 feet in diameter and reach a maximum height of 2.5 feet. The easternmost and the westernmost had been previously disturbed. Conical mounds No. 4 and No. 6, and the linear example (No. 7), were chosen for excavation as the most accessible and the least burdened by brush cover.

MOUND NO. 4

The diameter of mound No. 4 is 25.7 feet and the elevation is 2.5 feet. The mound was approached via a trench oriented to section the structure adjacent to its medial line. The trench, based upon a 5-foot square unit (0.5 foot vertical control), reached a maximum length of 20 feet. A single offset (one 5-foot square) was excavated to sample the apex and central portion of the mound (pl. 18, *b*).

STRATIGRAPHY

Two distinctive strata are present (fig. 15):

A. A basal stratum of compact yellow-brown loessic clay similar to that apparent in the adjacent countryside. Included are numerous small pockets of ash, charcoal, and occasional occurrences of aragonite (possibly caliche) crystals. Leached products of the subsoil have created a pervasive "chalky" appearance throughout the exposed portion of the stratum. These deposits form a distinctive dome or core, but not concentrically oriented with the observed outline of the superstructure. This underlying stratum, in detail, is composed of two transcending units:

1. An upper layer of distinctive ash and aragonite "pockets" inclusive in a dense, friable clay matrix.
2. Beneath 1, the chalky "color" (cf. 13JH3) is more pervasive, but the "pockets" are not present. It seems probable that 2 is undisturbed subsoil, penetrated by the leached products of 1.

B. The superstructure of the mound is distinctly less friable than the underlying stratum A, but is of a very similar matrix. Stratum A is separated from stratum B by a moderately abrupt transition, but a disconformity is not present.

It is apparent that mound No. 4 was constructed in two units, the lower containing ash, charcoal, and possibly, fragments of limestone, which are currently evident as aragonite. The matrix of the latter unit appears to be essentially similar to the indigenous subsoil into which it transcends. The inclusions, lacking distinctive patterns as they do (excepting possibly the putative limestone), suggest origin

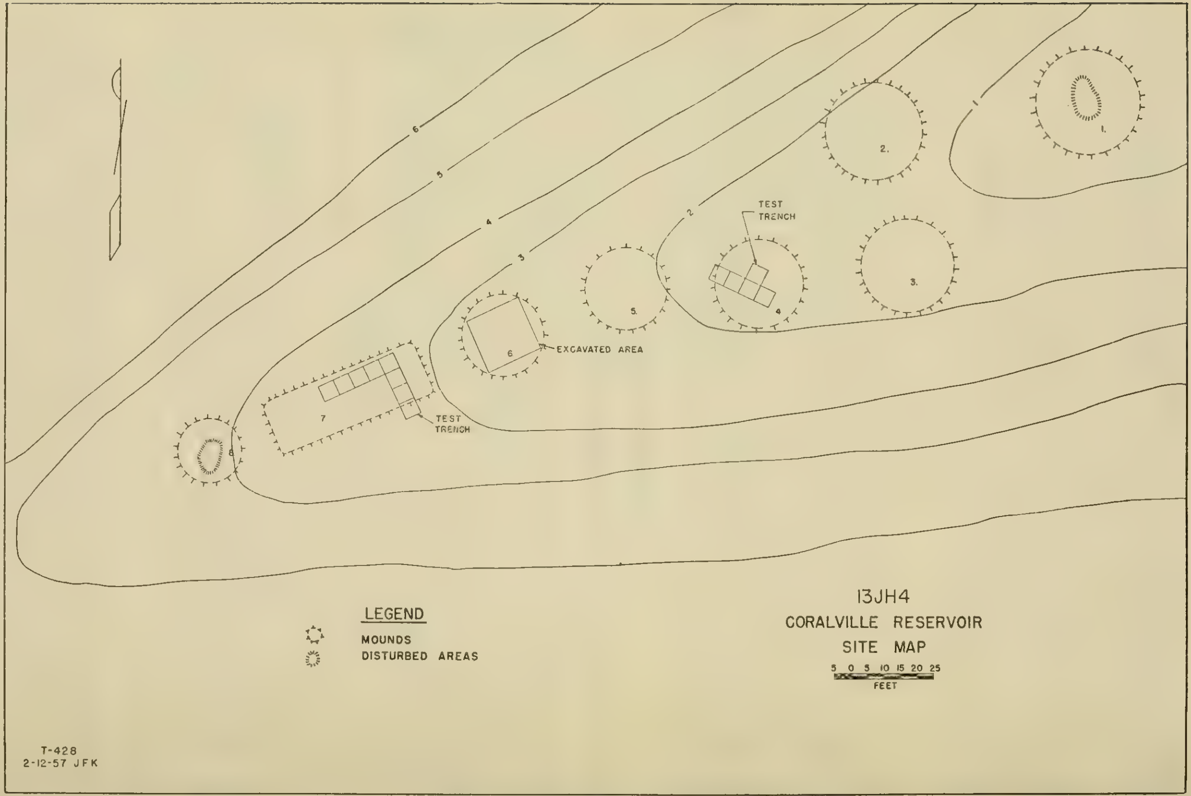
1.
2.
3.
4
5.
6
7
8
TEST TRENCH
EXCAVATED AREA
TEST TRENCH
1
2
3
4
5
6
13JH4
CORALVILLE RESERVOIR
SITE MAP
5 0 5 10 15 20 25
FEET
LEGEND
MOUNDS
DISTURBED AREAS
T-428
2-12-57 JFK

Figure 14.—13JH4, site map.

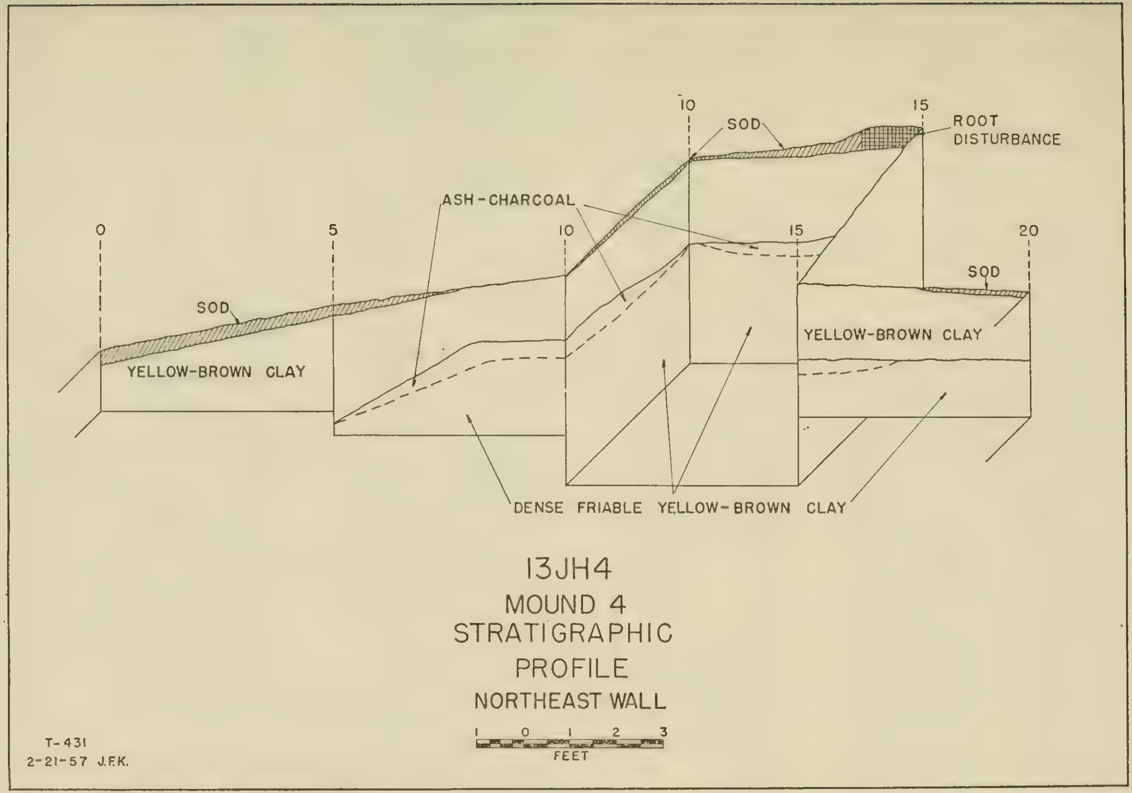
0
5
10
15
20
10
15
SOD
SOD
SOD
ROOT DISTURBANCE
ASH-CHARCOAL
YELLOW-BROWN CLAY
YELLOW-BROWN CLAY
DENSE FRIABLE YELLOW-BROWN CLAY
13JH4
MOUND 4
STRATIGRAPHIC PROFILE
NORTHEAST WALL
1 0 1 2 3
FEET
T-431
2-21-57 J.F.K.

Figure 15.—13JH4, mound 4, stratigraphic profile.

in an occupation area. The single included flake (see below) reinforces this possibility. It further seems probable, since no old soil surface is present, that an area, at least coextensive with the current superstructure, was stripped of sod prior to mound construction. The superstructural stratum B, since it is not sharply demarcated from A, was probably formed at the same time. It is of a homogeneous matrix containing no occupation debris.

ARTIFACTS

A single flake (13JH4–1), evidencing no purposeful retouching, is the sole artifact.

Depth: 2.4 feet in square 2 (stratum A).

ANALYSIS

Mound No. 4 can be summarized as follows:

Conical form
Probable removal of turf prior to construction
Body of mound formed in an abbreviated laminar fashion
Structural materials may derive, in part, from an occupation area
Possible limestone inclusions
No burial is present

The structure of mound No. 4 differs from that of 13JH3 only in that it was formed in two units. The presence of conical mounds of a primary-secondary or laminated structure has been noted in Jo Daviess Co., Ill. (Bennett, 1945, table 2, p. 97). It is not a frequent feature in that area, and the pattern of construction is markedly more complex than in the current example. Mounds are also largely unstratified in the Effigy Mound Culture of Wisconsin (Rowe, 1956, p. 72).

Removal of topsoil or turf prior to mound construction is a widely distributed trait in northwestern Illinois (Bennett, 1945, table 1, p. 96; table 2, p. 98), and is not infrequent in Wisconsin (Rowe, 1956). In total, however, the traits present in mound No. 4 are nondistinctive in terms of the more complex patterns present to the northeast.

MOUND NO. 6

The diameter of mound No. 6 is 25 feet and the height is 2.5 feet (fig. 14). Excavation procedure was basically similar to that employed in the testing of mound No. 4 (above). The initial excavation, however, was much expanded in order to sample a more extensive portion of the structure (pl. 19, *a*).

STRATIGRAPHY

Two distinct strata are present:

A. A basal structure of yellow-brown loessic clay. A chalky, leached constituent, similar to that noted above, was recognized central to the mounded superstructure. Upon the surface of this stratum was a linear grouping and three isolated examples of planar, waterworn limestone slabs (pl. 19, *a*). Each member was markedly fossiliferous. Surface soil was probably stripped prior to placement of the slabs.

B. Overlying and surrounding the slabs was a soft yellow matrix similar to the adjacent field pattern.

ARTIFACTS

The total inventory of cultural materials was excavated from stratum B:

1. *Conical pipe of pottery (fragmentary) (13JH4–3, 4).*
   Conical body, porous red paste, sand temper, molded hole nonconcentric with longitudinal axis of body. Plate 29, *a*, *b*.
   Length: 63.0 mm.
   Maximum diameter: 28.5 mm.
   Minimum diameter: 15.5 mm.
   Bowl fragments deriving from shattering of 13JH4–3 indicate a flat rim and a tapering, internal orifice.
   Projected rim diameter: 55.0 mm.
   Width of rim: 14.0 mm.
2. *Convex triangular projectile point, deep corner notches, flaring stem and slightly concave base (13JH4–10).* Plate 23, *e*.
   Length: 61.5 mm.
   Thickness: 8.5 mm.
   Cross section: Irregularly biconvex.
   Technique: Percussion, well controlled.
3. *Chipping debris (sample: 2).*
4. *An amorphous fragment of long bone.*

ANALYSIS

Mound No. 6 is summarized as follows:

Conical form
Probable removal of turf prior to construction
Constructed as a single component
Artifacts in fill but no other suggestion of derivation from occupation area
Limestone slabs on stripped soil surface
No burial evident

Mound No. 6 resembles 13JH3, but with the additional presence of limestone slabs situated upon the subturf surface. The stone inclusions do not resemble the "altars" described by McKern (1928, pp. 261–263), but may possibly be equated to the unassociated stones found in Effigy and Hopewell mounds in Wisconsin and Illinois (see Bennett, 1945, tables 1, 2, pp. 96–98; table 7, p. 114).

MOUND NO. 7

The length of mound No. 7 is 50 feet, the width 17 feet, and the height 1.0 feet (fig. 14). The mound was sampled via a 20-foot trench oriented to parallel the apparent long axis of the structure. A second trench, deriving from a sterile platform to the southeast, intersects the first to form an L-shaped excavation (pl. 19, *b*). All trenches were based upon a 5-foot square unit with a 0.5 foot vertical control.

STRATIGRAPHY

Two strata are present (fig. 16):

A. A basal structure of friable loessic clay similar to the indigenous soil pattern.

B. An overlay of loosely compacted brown clay separated from stratum A by a visible unconformity. No other evidence of an old soil surface is present. It seems probable that the latter was removed prior to the construction of stratum B.

ARTIFACTS

No artifacts were recovered from mound No. 7.

ANALYSIS

Mound No. 7 is summarized below:

Linear form
Turf probably removed prior to construction
Constructed as a single component

Mound No. 7 suggests a much simplified Effigy-linear pattern as outlined by Bennett (1945, p. 101; cf. Rowe, 1956; below). Logan (1955, p. 128) groups conical and linear mounds in northeastern Iowa as a potential but apparently as yet undefined unit. It should be noted that the simple conical mounds of the Chapman Site in Jo Daviess County, Ill., may be most closely related to the linear structures (Bennett, 1945, p. 104). Both linear and conical mounds are definitely associated with the Effigy Mound Culture of Wisconsin (Rowe, 1956, table 1, p. 15, passim).

ANALYSIS AND RECAPITULATION (13JH3 AND 13JH4)

A total of only five artifacts were collected from the three mounds sampled at Site 13JH4. Only two of them possess comparative value.

The conical pipe, by no means as omnipresent as the elbow or platform varieties, is nonetheless present in the literature (McKern, 1928, pl. LIII, 2), occurring in an Effigy Mound context.

The single corner-notched point (type 1, Cole and Deuel, 1937, pp. 53–55) is conventionally described as "Woodland." It is similar to but not identical with examples occurring in the Effigy Mound Culture of Wisconsin (Rowe, 1956, figs. 23, 25).

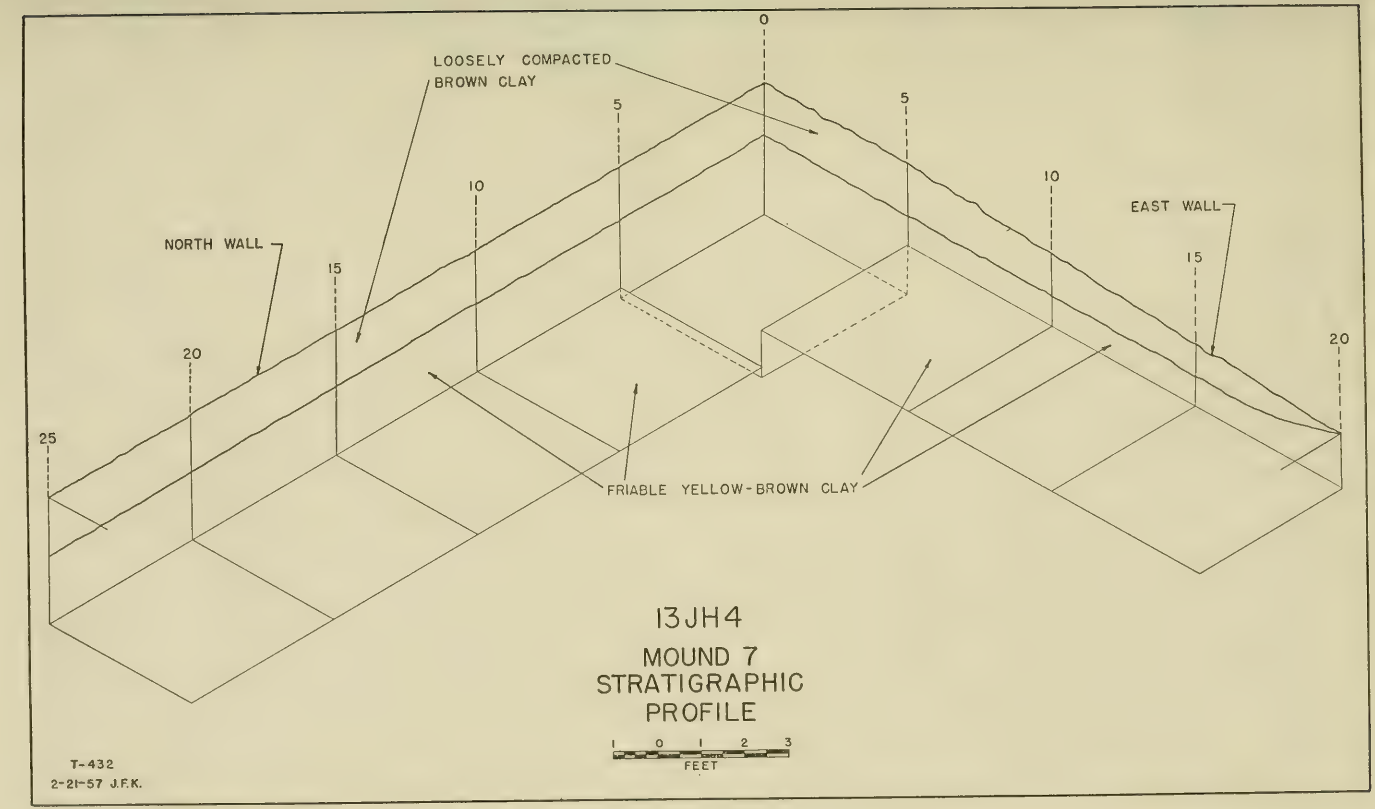
0
LOOSELY COMPACTED BROWN CLAY
5
5
10
10
NORTH WALL
EAST WALL
15
15
20
20
25
FRIABLE YELLOW-BROWN CLAY
13JH4
MOUND 7
STRATIGRAPHIC
PROFILE
1 0 1 2 3
FEET
T-432
2-21-57 J.F.K.

Figure 16.—13JH4, mound 7.

In view of the paucity and the random nature of much of the Coralville mound data, it seems most practical to consider Sites 13JH3 and 13JH4 as a total comparative unit. As implied above, the most satisfactory body of suggestively related data comes from Jo Daviess County, Ill., and from the Effigy Mound sites of Wisconsin. In light of the inadequacy of physically contiguous Iowa materials, the major comparative reference will be to the former areas.

Suggested traits of Sites 13JH3 and 13JH4 are:

Conical mounds:

1. Conical form, small
2. Topsoil removed prior to construction
3. Structure in a single layer
4. Structure stratified or laminated
5. Pottery: Lake Michigan ware, conical pipe
6. Projectile points
    - *a.* Triangular, plain?
    - *b.* Corner-notched
7. Occupation debris included in mound fill
8. Fragments and slabs of limestone included in mound fill
9. No burials present

Linear mounds:

1. Linear (rectangular) form
2. Topsoil removed prior to construction
3. Structure in a single layer
4. No burial present

In general, the observed and putative traits are not definitive and offer slight basis for a detailed comparison. In southern Wisconsin, Rowe considers conical and linear mounds, found in the Effigy Mound Culture, as related units of a large and complex series of mound types (Rowe, 1956, pp. 14, 69). No site contains all the known forms, but repeated associations are such as to make a relationship tenable. With one exception, conical mounds are present in all the site groupings (ibid., table 1, pp. 15–17). In all cases, they are many times more frequent than linear forms (ibid.). Linear mounds occur at all but four sites and then always as a minority feature (ibid.). Conical mounds are present in contexts lacking linears at three sites, but linear mounds without conicals were found only once (ibid.).

In describing the effigy, linear, and conical mounds of northwestern Illinois, Bennett (1945, p. 95) has considered the structures as falling into two groupings: (1) Linear-Effigy, and (2) Conical. In view of the scarcity of data and the random overlap of many traits, Bennett concludes that with one possible exception, "The linears represent a single manifestation" (ibid., p. 99). In addition, "Pending further excavation, the effigies must be considered as similar to the linears in all respects save form" (ibid.). The conicals also represent a single grouping, but a group that is characterized by considerable complexity and variability (ibid., p. 101). "Satisfactory identification of Lake Michigan pottery in the conical mounds can be made only for MacDonald mound No. 4 and the Chapman group, and the latter perhaps should be considered as a member of the linear manifestation. No Hopewellian pottery was found in the linears" (ibid., p. 108).

Bennett concludes that the Jo Daviess sites examined imply a cultural mixture (ibid.). Specific Hopewellian influences are noted.

The lack of complexity characteristic of the mounds excavated at Sites 13JH3 and 13JH4 may be of significance. The conical mounds and the single linear structure are basically similar in construction, and seem to represent a common phenomenon. A single exception is the stratified or laminated fill of mound No. 4, 13JH4. Such construction is not common in either southern Wisconsin or northwestern Illinois, but it is present in both regions, occurring with some complexity in conical mounds of the Portage group (ibid., pp. 37, 38, 101).

In Jo Daviess County, the Chapman group contains the simplest and most distinctive of the conical mounds. They show "ceramic features and other traits linking them to the linears" (ibid., p. 101). Seven of the 9 traits outlined for the conical mounds of the Coralville Reservoir occur in the 16-trait summary of the Chapman group (ibid., pp. 72–73). Certain similarities, commensurate with the generalized nature of the structures involved (1–3, above), are probably of limited comparative value. Traits 5, 6, 7, and 8 perhaps are of more significance. The presence of Lake Michigan pottery occurs in common, although the inclusion of a partial pot is not present at Coralville. It should be noted, however, that the sherds found in the mound at 13JH3 were possibly introduced as old occupational debris. Although greater quantities of included debris are implied for the Chapman mounds, the presence of such fill as a constructional feature is of particular interest. While this is not restricted to the Chapman site, other Jo Daviess mounds are largely debrisless.

Projectile points suggest a "Woodland" tie, but specific relationships are not plain. Similarly, the limestone slabs of mound No. 6, 13JH4, represent an equally diffuse pattern. Fragments, or in some cases slabs of stone, as distinguished from "altars" (McKern, 1928, pp. 261–263), occur in varying association in the mounds of northwestern Illinois (Bennett, 1945, p. 107). No altars, as such, were found at either Site 13JH3 or Site 13JH4, yet the limestone slabs at these loci imply something similar. This pattern, perhaps, is more specifically related to the limestone and sandstone inclusions at the

Raisbeck Site in southern Wisconsin (Rowe, 1956, passim). In terms of their usual simplicity of construction, the Wisconsin mounds suggest a possible relationship to those of the Coralville Reservoir. The former are largely unstratified (ibid., p. 72) and with some evidence of the removal of sod as a preliminary to construction. In addition, occupational debris is present in the mound fill. It should be emphasized, however, that as in northwestern Illinois, there are many other traits not found in the Coralville sites. Most important are subfloor pits, a complex, overlapping group of burial patterns, and a greater range of pottery forms. On the basis of listed traits (Bennett, 1945, tables 1 and 2; Rowe, 1956, pp. 75–76), similarities between the sites of southern Wisconsin and northwestern Illinois and those of the Coralville Reservoir are few and inconclusive. In essence, the simple mound form and a related pottery are all that are held in common. Ceramic decorative motifs appear to be closer to those of Jo Daviess County than to those of southern Wisconsin (see 13JH202). Conversely, the simple mound structures suggest a closer tie to the latter area. This varying pattern of relationship may be illusory. As a cursory assessment, Bennett seems to have differentiated Hopewell influences more sharply, hence the seeming close relationship of the Iowa to the Jo Daviess ceramics; what is being compared is more solidly a type or a ware than is the case in southern Wisconsin. Rowe's pottery may include several undifferentiated elements, thus accounting for the apparent lesser similarity.

THE ALT SITE (13JH5)

When first recorded (Ward, 1904, pp. 14–15), the Alt Site consisted of three conical mounds situated on the upland just west of the Iowa River. Informants indicated to the Smithsonian field party that recent cultivation had destroyed all of the original structures. As a result, the area was not visited.

SITE 13JH6

This mound group (13JH6) located in a schoolyard just west of county road 153, originally consisted of seven low, conical structures 25 to 30 feet in diameter (ibid., pp. 8–10). In the autumn of 1956 only four mounds were visible. All were much disrupted by recent digging. No excavation was attempted, nor were artifacts noted.

SITE 13JH7

Site 13JH7 consists of four conical mounds with the probable addition of a single linear structure. The mounds, ranging from 25 to 30 feet in diameter, are oriented along a northwest-southeast line paralleling the edge of a steep bluff just east of the Iowa River. Wheeler (1949, p. 7) notes that the mounds appeared to be undisturbed. Local informants, however, indicate that in the past, several burials were removed from the structures. No testing was possible during the field season of 1956.

SITE 13JH8

This group of three low conical mounds (13JH8), ranging from 24 to 30 feet in diameter, is oriented in an east-west direction along the crest of the bluff north of the wide bottom lands of the upper or maximum pool area (ibid.). The site is well outside of the delineated reservoir and hence was not visited.

SITE 13JH9

Situated three-quarters of a mile east of 13JH8, this complex "consists of two low conical mounds, 33 feet and 36 feet in diameter, and, about 300 feet to the west, a pair of low conical mounds, 20 feet and 24 feet in diameter. All four of the mounds appear to be undisturbed. Local residents reported that twelve or more similar mounds occur along the bluff to the southeast of the mounds located" (ibid.). Since this group, too, is outside of the pool area, it was not visited.

As noted above, an additional series of sites, both mound groups and occupation areas, was reported by interested amateurs (fig. 10). An attempt was made to relocate the indicated sites. However, lacking legal definition or other entree, success was negligible. New sites discovered by the 1956 field party are described below.

THE HARAPAT LANE SITE (13JH201)

The Harapat Lane site is situated upon the crest of a narrow "hog-backed" isthmus separating two extensive ravine developments confluent to the eastern edge of the Iowa River canyon. It is, in effect, the erosional remnant consequent to the headward cutting of both ravine growths. Current erosion is not visible, but the grassed-over cuts of recently terminated activity are abundant.

For a period of years the landowner has recovered artifacts (preponderantly projectile points) from the scuffed surface of a narrow lane connecting his cattle barns with the stock pasture to the south. Recent grading and fence construction had exposed a definite post pattern and numerous additional artifacts. Archeological excavation was contingent upon the movement of stock and the demands of cultivation. As a consequence, it was most feasible to sample the site by a partial excavation of the lane, reexposing the post pattern, and by a series of five shallow tests (Features 3–7) in the adjacent field areas (fig. 17). The occupation base exposed was roughly rectangular, ca. 130′ north to south, by 30′ east to west (pl. 20, *a*; fig. 17).

STRATIGRAPHY

The stratigraphic pattern, exposed in the lane cut and in the five test pits, is basically the same over the entire site. Two definable strata are present:

A. The basal structure is composed of a friable yellow-brown loess similar to the surrounding field exposures. This is the characteristic capping in the entire Coralville region.

B. Overlaying A is a thin brown humic fill of midden debris transcending into a thick heavy dark sod.

As far as available data indicate, all previously collected artifacts have come from stratum B, since there is no evidence that farming activities have penetrated beneath the compacted surface of stratum A. The current series (below) definitely is localized in stratum B. The post and pit pattern is apparent only in stratum A and must certainly date from on or near its original surface.

A total of 11 post molds was present. Excavated depths, plotted from the exposed surface of stratum A, ranged from 0.2 to 1.4 feet; the diameter at surface varied from 0.70 to 1.3 feet. It is probable that the total post pattern was not recovered in the restricted area of excavation. The exposed portion, however, does form a roughly linear series with a distinct cluster about a larger pit, designated Feature 1. The latter, 2.5 feet in diameter and 2.1 feet deep, and the similar Feature 2 (3.2 feet × 1.1 feet), are substantially larger and deeper than the postholes (pl. 20, *b*). Sectioning indicated that both pits had vertical walls and flat bottoms. Small fragments of charcoal were abundant in the interior fill, which otherwise resembles that of stratum B. A function as cache pits might be tentatively offered for Features 1 and 2.

ARTIFACTS

The excavated materials from 13JH201 are decidedly limited in quantity and nondefinitive in variety. Surface finds recovered by Leo Harapat, the landowner, however, provide additional data suggestive of somewhat more positive interareal ties (6 below). Only lithic materials have been noted from the site.

1. *Miscellaneous point fragments.*
    - *a*. Convexly triangular, sloping shoulder, stem fragmentary (13JH201–11). Depth: 0.5–1.0 foot below surface, Feature 4. Plate 23, *f*.
    - *b*. Convexly triangular basal fragment.
    - *c*. Fragment, small leaf-shaped blade.
    - *d*. Body fragment, form unknown (13JH201–1).

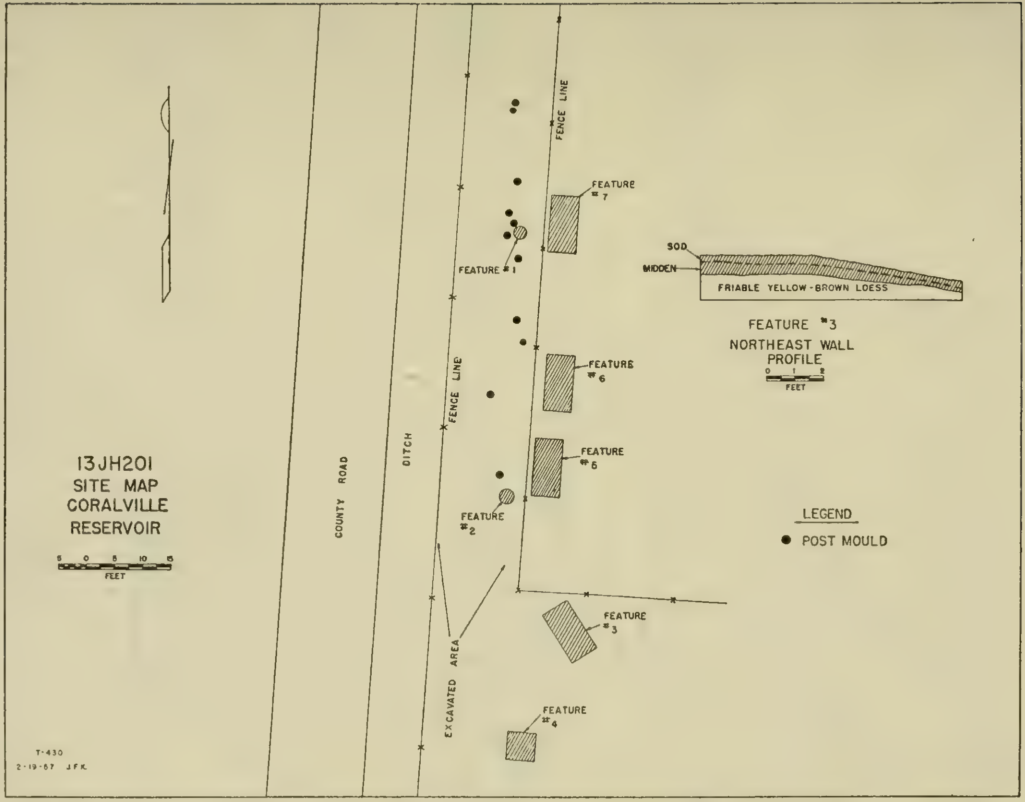
13JH201
SITE MAP
CORALVILLE
RESERVOIR
5 0 5 10 15
FEET
COUNTY ROAD
DITCH
FENCE LINE
FENCE LINE
EXCAVATED AREA
FEATURE #1
FEATURE #2
FEATURE #3
FEATURE #4
FEATURE #5
FEATURE #6
FEATURE #7
SOD
MIDDEN
FRIABLE YELLOW-BROWN LOESS
FEATURE #3
NORTHEAST WALL
PROFILE
0 1 2
FEET
LEGEND
● POST MOULD
T-430
2-19-67 J.F.K.

FIGURE 17.—Site map of 13JH201 and stratigraphic profile of Feature No. 3.

e. Angular point fragment, form unknown (13JH201–6).
Depth: 0.0–0.5 foot below surface of lane.

f. Body fragment, large (triangular?) blade (13JH201–10).
Depth: 0.0–0.5 foot below surface, Feature 1.

g. Fragmentary, small leaf-shaped blade (13JH201–15).
Depth: 0.5–1.0 foot below surface, Feature 6. Plate 23, *g.*

2. *Fragmentary, large, crudely chipped, leaf-shaped blade (13JH201–7).* Plate 24, *i.*
   Depth: 0.5–1.0 foot below surface, lane.
3. *Thumb or end scraper, tongue-shaped body, obtuse triangular base, abruptly beveled scraping edge (13JH201–5).* Plate 24, *e.*
   Length: 31.0 mm.
   Width: 33.0 mm.
   Thickness: 8.0 mm.
   Cross section: Biconvex; plano-convex.
   Technique: Percussion, well controlled.
   Depth: 0.0–0.5 foot below surface, lane.
4. *Irregular flakes with retouched edges (sample: 3).*
   Depth: 0.5–1.0 foot below surface, Features 1, 6, and 7.
5. *Spall chopper or celt, fragmentary poll, flaring bit, roughly beveled chopping edge (13JH201–8).* Plate 25, *b.*
   Length: 71.0 mm.
   Width: 68.0 mm.
   Thickness: 23.5 mm.
   Cross section: Plano-convex.
   Technique: Ground.
   Depth: Unknown, Feature 1.
6. *Harapat collection.* Only a brief field examination was possible. The following typological groupings are present:
   a. Stemless points.
      (1) Leaf-shaped blade (sample: 1).
      (2) Large points of pentagonal shape (sample: 3).
      (3) Elongate points with truncated leaf-shaped body and concave base (sample: 5).
   b. Stemmed points.
      (1) Convex triangular body, abrupt shoulder, expanding stem, convex base (sample: 5).
      (2) Convex triangular body, deep side notches, convex base (sample: 4).
      (3) Triangular body, deep corner notches, expanding stem, concave base (sample: 4).
      (4) Triangular body, abrupt shoulder, contracting stem (sample: 2).

ANALYSIS

Site 13JH201 has produced no evidence of pottery. Since excavations were limited, however, and since surface collection in the stock lane was highly casual, the site cannot be labeled unequivocally as nonpottery or prepottery in orientation. If the totality of excavated and surface-collected materials is considered, it is evident that large stemmed points are in the majority. They fall readily into the heterogeneous type 1, the "so-called Woodland type" of the Illinois Valley (Cole and Deuel, 1937, pp. 53, 55). Exact horizonal affiliations are not patent in the literature, but a Middle Woodland range is suggested. The smaller series of stemless points is, in part, identical to groups 1–3 from Site 13JH2 and to the Nebo Hill materials. The Illinois Valley Type 2 (ibid., p. 55) absorbs the remaining stemless forms. The lithic materials, considered in themselves, suggest the possibility of a late Archaic to Middle Woodland temporal range. Nor is the postmold pit pattern more instructive. Habitation structures have not been widely reported in the literature bearing upon Woodland problems. Under the circumstances, and lacking a complete recovery of data, the pattern excavated at 13JH201 cannot be unequivocally described as a house structure, but a complete house plan from beneath mound No. 9 at the Havana Site (McGregor, 1952, pl. 16, p. 51) has features that are suggestively similar. The artifacts and postmold pattern of 13JH201 are definitely associated (above). On the basis of stratigraphic occurrence, the artifacts must be contemporaneous with or postdate the remnant structure. As a consequence, and even though the large stemless points might indicate an earlier date, a Woodland affiliation seems probable.

WOODPECKER CAVE (13JH202)

More truly a rock shelter, the Woodpecker Cave site is situated within a bedded limestone exposure 10 feet above the flood plain of a southwest-trending affluent of the Iowa River. A habitation platform 50 feet in length and averaging 7 feet in width is situated at the top of a steep, dormant, talus slope (fig. 18; pl. 21, *a*). A wide overhang, 17 feet in height, gives protection to the occupation area. The northeast portion of the overhang develops into a low irregular cave (pl. 21, *b*). Both cave and overhang were originally meandercut, consequent upon a marked increase of water volume in the valley below. More recently, stream erosion has been amplified by mechanical weathering. As a consequence, rock fall in the occupation area is abundant.

The occupation platform and cave were excavated almost in their entirety (pl. 22, *a*, *b*). The outer portion of the talus slope was only partially sampled because of the encumbrance of rock fall and heavy tree growth. A grid pattern of 5-foot squares, numerical along its SE–NW axis and alphabetical along its NE–SW base, was utilized as a means of horizontal control. The NE–SW axis paralleled the crest of the talus slope forming the outer margin of the habitation platform. Vertical controls were based upon 0.5-foot excavation units, related to surface datum in the northern corner of each square.

The surface of the cave and occupation platform, particularly in the northeastern portion, showed considerable disturbance apparently resulting from rodent action and the trampling of livestock.

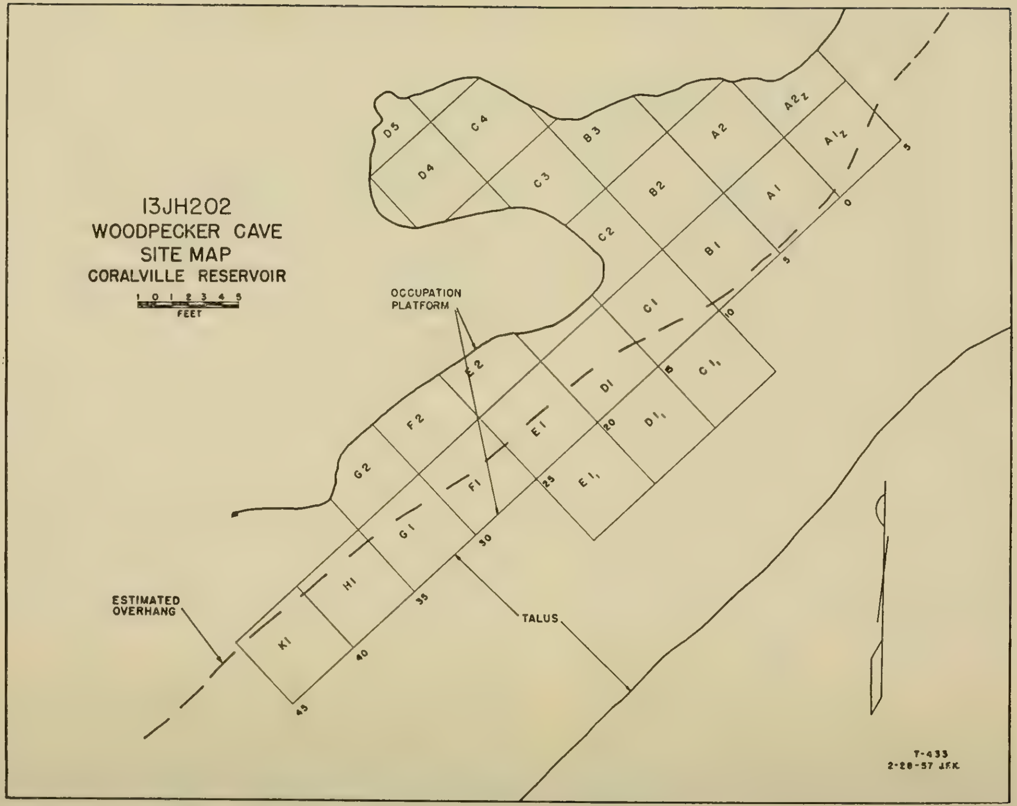
13JH202
WOODPECKER CAVE
SITE MAP
CORALVILLE RESERVOIR
1 0 1 2 3 4 5
FEET
OCCUPATION PLATFORM
ESTIMATED OVERHANG
TALUS
D5
C4
D4
B3
C3
A2
B2
C2
A2z
A1z
A1
B1
C1
D1
C1,
D1,
E1
E1,
E2
F2
F1
G2
G1
H1
K1
5
0
5
10
15
20
25
30
35
40
45
T-433
2-28-57 J.F.K.

FIGURE 18.—13JH202, site map.

STRATIGRAPHY

Two distinct strata are present (fig. 19):

A. The basal structure is composed of a fine yellow-brown loessic matrix containing a compact mass of interlocked limestone fragments. The latter obviously represent roof fall. The limestone constituent of *A* was so densely compacted that it proved impractical to excavate to the lower limits of the stratum. A maximum depth of 8.5 feet was reached but only in square A1. Stratum A forms a horizontal bed across the mouth of the cave but rises abruptly toward the surface beneath the southwestern portion of the shelter (squares E1, F1). This stratum is not present within the cave proper. It extends only slightly into the southern portions of squares A2 and B2. Except squares C4 and D4, the overlying stratum B (below) extends completely to the sloping bedrock cave floor. In the latter squares, a matrix resembling stratum A is present, but closely cemented, and containing frequent nodules of flint, fragments of charcoal, shell, and fire-cracked rock.

B. A gray-black organic matrix overlying stratum A and separated from it, in the northern and northeastern portions, by a slight but distinct unconformity. Rodent disturbance is extreme, but does not extend beyond the upper two-thirds of the deposit. Large tabular fragments of limestone, reaching a maximum weight of 350 pounds (estimated), are frequent. Fire-broken rock is abundant and general in distribution; charcoal is scattered. Stratum B is characterized by a generalized ash content. Dense ash lenses are localized just within and adjacent to the mouth of the cave proper as follows:

1. Square E2, at depth 1.0 foot, and extending, aginst the slanting limestone wall, to bedrock.
2. Square C2 at 1.5–2.0 feet.
3. Square B2, at the 4.5-foot level, a lense of yellow ash and charcoal cemented into a dense mass.

Stratum B represents a ceramic horizon with a minimal quantity of lithic material present. Worked bone and antler are not common, but unmodified mammalian, piscine, and avian remains are exceedingly abundant (see Appendixes). Much of the bone material is calcined and most is shattered or fractured. There is a small but constant inclusion of shell throughout the deposit. Stratum A has produced no definitive artifacts, but human occupation is indicated by the presence of burned bone, charcoal, shell, and fire-shattered stones. The nonartifact pattern is substantially that of B, but less intense in occurrence. The exceedingly heavy rock fall of stratum A suggests a period of somewhat increased precipitation resulting in more apparent frost action.

ARTIFACTS

The artifact sample recovered from 13JH202 is small, although much more substantial than that from other sites tested in the reservoir. The following typological groupings are, in effect, a direct consequence of the limited inventory.

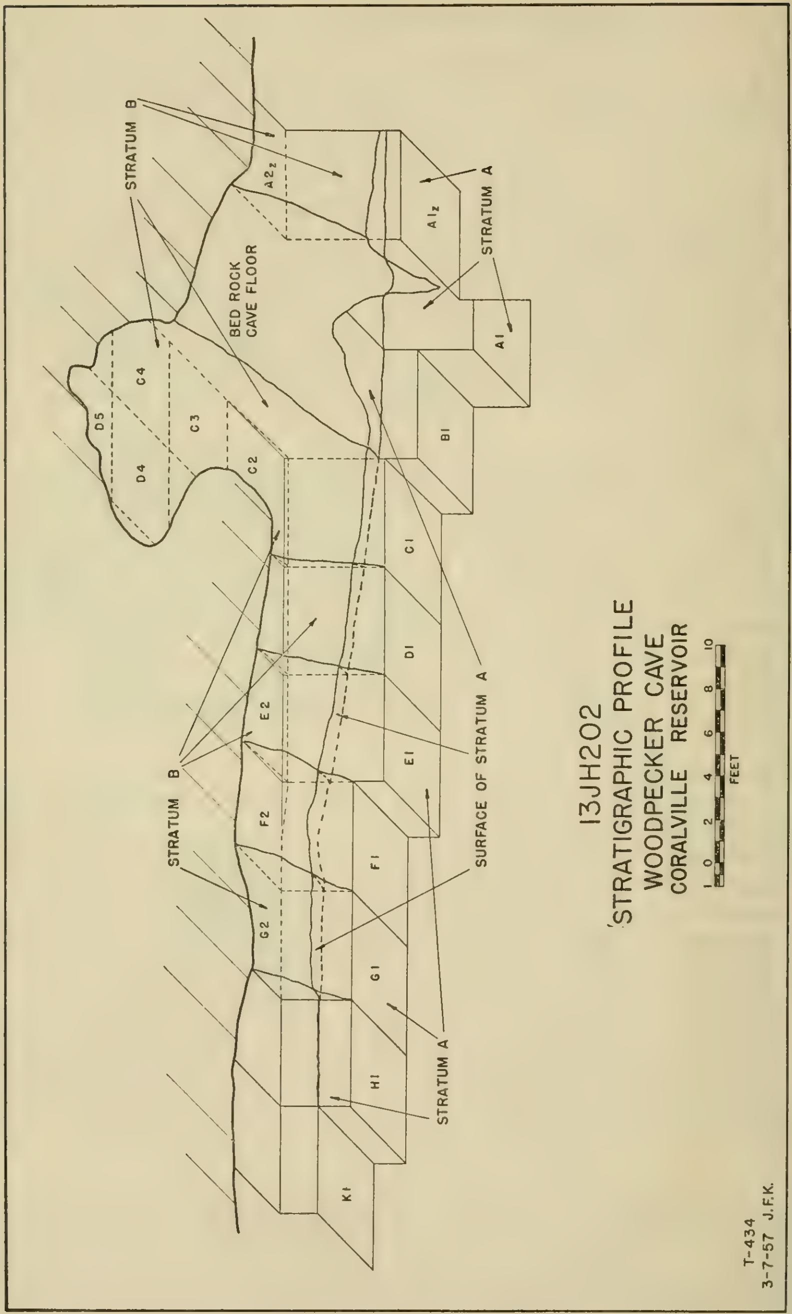
STRATUM B
A2z
BED ROCK
CAVE FLOOR
STRATUM A
A1z
A1
B1
D5
C4
C3
D4
C2
C1
D1
E2
E1
STRATUM B
F2
F1
G2
G1
H1
K1
SURFACE OF STRATUM A
STRATUM A
13JH202
STRATIGRAPHIC PROFILE
WOODPECKER CAVE
CORALVILLE RESERVOIR
1 0 2 4 6 8 10
FEET
T-434
3-7-57 J.F.K.

FIGURE 19.—13JH202, stratigraphic profile.

CERAMICS

Total sample: 463 sherds.

I. *Group A (sample: 319 sherds, 35 rim sherds, portions of 35 vessels).* Plate 27, *c-f*, *j*, *k*.

- *A.* Paste:
  1. Temper—fine grit or sand with two varieties of inclusions.
     - *a.* Pebbles of quartzite, both angular and waterworn.
       Range of diameter: 0.5–1.0 mm.
     - *b.* Large, angular black crystals, probably hornblende.
       Range of diameter: 1.0–3.0 mm.
  2. Texture.
     - *a.* Surface—medium coarse.
     - *b.* Core—dense and homogenous in sherds containing grit aplastic, otherwise friable and somewhat lamellar.
  3. Color.
     - *a.* Exterior—gray black—a minority of sherds are wholly or partially oxidized to a variable red-orange color, firing clouds infrequent.
     - *b.* Interior—identical with above.
     - *c.* Core—similar to cortex except in heavily oxidized sherds where a "spotted" or variable coloring is encountered.
- *B.* Surface treatment:
  1. Exterior—cord-wrapped paddle impressions, covering entire body of vessel. Vertical treatment is most common, but criss-cross of horizontal variants occur.
  2. Interior—well smoothed, finger and tool marks indicate horizontal, annular manipulation.
- *C.* Form:
  1. Lip—two variants are present:
     - *a.* Narrowed and rounded, beveled on the interior surface toward a rounded or subapical termination (0.46 of sample).
       Range of thickness: 1.5–3.0 mm.; mean, 2.2 mm.
     - *b.* Flattened, a definite internal flange occurs in one case, external flanges in two. A rolled lip is present in a single example.
       Range of thickness: 3.5–8.0 mm.; mean, 5.6 mm.
  2. Rim and neck—incurved, a single example, that of a modified "raised corner" variety (pl. 27, *j*, *k*) (Baker et al., 1941, p. 20; Bennett, 1945, p. 81; Schoenbeck, 1946, p. 36), suggests an outsloping emergence. A vertical rim is also present in a single case. A marked thickening of the rim at the shoulder juncture occurs in 0.11 of the sample.
     Range of thickness: 4.0–8.0 mm.; mean, 5.5 mm.
     Range of height: 22.0–50.0 mm.; mean, 32.8 mm.
  3. Shoulder—smoothly curved.
     Range of thickness: 3.5–11.0 mm.; mean, 6.2 mm.
  4. Body—probably globular.
     Range of thickness: 2.5–8.0 mm.; mean, 4.4 mm.
  5. Base—no data.
- *D.* Vessel shape: a single shape is present—a wide-mouthed jar with a globular body.
  Estimated mean height: 190 mm.
  Estimated mean diameter: 160 mm.

I. *Group A*—Continued
  E. Decoration.
    1. Technique—cord impression, single cord (rim and neck), twisted cord, knotted cord and dentate stamps (lip and shoulder).
    2. Motifs.
      a. Lip.
        (1) Unmarked (10 cases).
        (2) Cord-impressed.
          (*a*) Chordic or oblique to arc of rim (3 cases).
          (*b*) Circumferential or annular (1 case).
      b. Upper rim.
        (1) External surface.
          (*a*) Cord-impressed, vertical or slightly oblique to lip (8 cases).
          (*b*) Dentate stamp.
        (2) Internal surface.
          (*a*) Unmarked (1 example).
          (*b*) Cord-impressed, oblique to surface of lip (3 examples).
          (*c*) Cord-impressed lines circumferential below lip (3 examples).
          (*d*) Parallel cord-impressed lines perpendicular to lip (1 example).
          (*e*) Parallel rows of knotted cord impressions (1 example).
          (*f*) Vertical dentate stamp (1 example).
      c. Lower rim.
        (1) External surface.
          (*a*) Parallel, encircling cord-impressions (28 examples).
          (*b*) Parallel lines with panels of alternating oblique cord impressions (3 examples).
        (2) Internal surface.
          (*a*) Unmarked (28 examples).
          (*b*) Parallel, encircling cord impressions (3 examples).
          (*c*) Dentate stamp (2 examples).
          (*d*) Knotted cord impressions.
      d. Shoulder—linear or knotted cord stamp pendant to encircling rim design (6 examples).

II. *Group B (sample: 29 sherds, 5 rim sherds, portions of at least 3 vessels).* Plate 28, *i.*
  A. Paste.
    1. Temper—sand, containing large, smoothly angular pebbles.
       Range of diameter: 0.5–3.0 mm.
    2. Texture.
      a. Surface—smooth and hard, variable.
      b. Core—friable and laminated.
    3. Color.
      a. Exterior—firing clouds frequent, ranging from a dominant orange red to a reduced gray.
      b. Interior—as above.
      c. Core—uniformly gray.
  B. Surface treatment.
    1. Exterior—cord-marked. The intervening ridges are uniformly smoothed, partially obscuring the cord marks beneath. Direction of marking is predominantly vertical.
    2. Interior—roughly smoothed, horizontal, encircling tool marks are apparent.

II. *Group B*—Continued

C. Form.

1. Lip—roughly flattened, an irregular flange, external and internal, occurs on one specimen. Width of lip is variable as a result of pressure distortion incident to the application of dentate and cord neck stamping.
   Maximum thickness: 11.0 mm.
2. Rim and neck—straight, rising vertically from shoulder; no neck constriction is present.
   Range of thickness: 9.5–11.0 mm.; mean, 10.1 mm.
   Range of height: 43.0–53.5 mm.; mean, 48.3 mm.
3. Shoulder—steeply sloping.
   Range of thickness: 6.0–8.0 mm.; mean, 6.8 mm.
4. Body—probably globular.
   Range of thickness: 5.0–11.5 mm.; mean, 7.8 mm.
5. Base—no data.

D. Vessel shape—only a single shape is present, a medium-sized, wide-mouthed jar.
Estimated mean height: 240.0 mm.
Estimated mean diameter: 200.0 mm.

E. Decoration.

1. Technique—bosses pushed from interior rim, dentate stamp on interior rim, cord impressions.
2. Motifs.
   a. Lip—unmarked.
   b. Rim.
      (1) External surface: Round bosses punched from interior; bosses emerge as smooth protuberances from an irregularly smoothed, cord-marked background.
      (2) Internal surface: Vertical dentate stamps pendent from lip in interstices between punched boss negatives; a single example is plain.
   c. Shoulder. Irregular, vertical cord impressions overlying the background cord markings. The upper termination of the overlay forms a distinct border just beneath the bosses and grades below into the background decoration of the shoulder.

III. *Miscellaneous cord-marked sherds.*

A. Rimsherd (13JH202–264): Sand temper, medium coarse texture with laminated core, color red to buff, lip flattened (thickness, 8.5 mm.), rim upright and straight (thickness, 10.0 mm.; height, 38.0 mm.), smoothed cord-marked background, exterior punched bosses, vertical cord stamping at shoulder and just below lip.

B. Rimsherd (13JH202–220/3): Sand temper with quartzite pebble inclusions, moderately smooth texture with compact core, color buff with external periphery (thickness: 9.5 mm.), rim straight and vertical gray interior, lip beveled from inner flanged ridge toward an irregular, (thickness: 6:5 mm., height: 32.0 mm.), cord-impressed decoration, smoothed near shoulder juncture.

C. Body sherds (sample: 9) (pl. 28, *j*): Sand or grit temper, moderately rough texture, compact gray core, gray color with firing clouds present, (range of thickness: 7.5–11.0 mm.), random cord-marked surface treatment, two sherds evidence additional techniques:

1. Trailed line.
2. Short, plain stamps in two parallel lines below an annular series of oblique slashes.

III. *Miscellaneous cord marked sherds*—Continued

D. Body sherds (sample: 19): A heterogeneous grouping, none of which can be categorized into the preceding units. The sherds resemble each other only in the common characteristic of cord-marked surfaces. As is also the case of III A, B, and C above, a close typological relationship to group B is suggested. On an inductive basis, the lack of transitional sherds indicates the necessity for a separate description.

IV. *Sherds with "trailed" decoration* (sample: 2 rimsherds) (pl. 28, *d*, *e*): Grit temper, moderately coarse texture, gray color, lip flat with narrow external overhang (thickness: 6.5 mm.), neck slightly insloping (thickness: 6.0 mm.), trailed-line decoration, short oblique stamps occur on external surface of lip. Adjacent to the lower border of the latter are five parallel trailed lines. From the lowermost is suspended a series of triangles formed by oblique lines following opposing directions in adjacent paneled motifs. In terms of paste, color, and motif, these sherds suggest a close typological relationship to Group A.

V. *Plain "Wares."*

A. Miscellaneous plain sherds (sample: 4 rimsherds, 11 body sherds, portions of 2 vessels), temper of coarse sand or fine gravel (2.0–5.0 mm.), coarse texture, exterior surface "crinkled" with innumerable firing cracks, core compact, color buff to dark gray with many firing clouds. exterior roughly smoothed with finger or tool marks locally visible, interior rough, lip rounded (thickness: 7.0–9.5 mm.), rim and neck insloping and blending smoothly into shoulder (thickness: 6.5–8.0 mm., height: 21.0–31.0 mm.), shoulder smoothly curved, body form suggests a short-necked "olla." A series of hemiconical stamps occurs on the exterior portion of the lip.

B. Miscellaneous plain sherds (sample: 9 rimsherds, portions of 9 vessels (pls. 27, *g–i;* 28, *f*): Sand temper containing small pebbles (0.5–1.5 mm.), medium coarse texture, compact core, orange to gray color, smoothed body, flattened lip (thickness: 4.5–6.0 mm.), incurved rim (thickness: 5.5–8.5 mm., height; 24.0–35.0 mm.), smoothly curved shoulder (one example sharply angular) (thickness: 7.5 mm.), body form unknown, lip decoration of hemiconical or angular stamps applied vertically (or slightly oblique) to the external edge of lip. This group of sherds, in terms of lip decoration, suggests a typological relationship to Plain Ware A above. The latter is heavier and in general more crudely constructed.

C. Miscellaneous plain sherds (sample: 2 rimsherds, representing 2 different vessels) (pl. 28, *c*): Sand temper, medium smooth texture, compact core, buff color, surface scraped, tool marks still visible on lower rim, body form unknown, lip flattened but with slight inner flange (thickness: 6.5 mm.), rim and neck incurved (thickness: 8.0 mm.; height: 23.0, 33.0 mm.), upper surface of lip punctated to produce an angular, saw-toothed edge.

D. Miscellaneous plain sherds with punctated rims.

1. Rimsherd (13JH202–661/1) (pl. 28, *a*): Sand temper, medium rough texture, compact core, gray color, smoothed or scraped surface, lip beveled toward exterior (thickness: 4.5 mm.), rim incurved and upright (thickness: 5.0 mm.), body form unknown, juncture of lip bevel and rim stamped with a cylindrical tool.

V. *Plain "Wares"*—Continued
  - *D.* Miscellaneous plain sherds with punctated rims—Continued
    - 2. Rimsherd (13JH202–606) (pl. 28, *b*): Fine sand temper, coarse texture, compact core, surface irregularly smoothed, lip rolled unevenly outward forming a waved or scalloped edge (thickness: 8.0 mm.), straight rim (thickness: 7.5 mm.; height: 22.0 mm.), body form unknown, upper surface of lip deeply marked with thin rectangular punctate.
  - *E.* Plain sherds with undecorated rim.
    - 1. (13JH202–319/2) (pl. 28, *g*): Sand temper, medium-fine texture, compact core, gray color, scraped surface, lip thickened and rolled outward (thickness: 5.0 mm.), rim incurved (thickness: 4.5 mm.).
    - 2. (13JH202–489/2): Gravel temper (diameters to 4.0 mm.), smooth texture, porous core, buff to gray in color, scraped surface, lip thinned and rounded (thickness: 4.5 mm.).
  - *F.* Miscellaneous plain body sherds (sample: 45): a heterogeneous group of nondistinctive affiliation.
  - *G.* Miscellaneous plain body sherds with shell temper (sample: 8) (pl. 29, *d*).
  - *H.* Limestone-tempered sherd (13JH202–680).
  - *I.* Potsherd pendant (13JH202–568) (pl. 28, *h*): sand temper, buff color, compact core, surface marked by smoothed cord impressions. The irregular triangular outline is roughly chipped from a thin body sherd. The apical portion is deeply notched on either side; surface wear suggests suspension as a pendant.
    Length: 59.0 mm.
    Width: 48.5 mm.
    Thickness: 6.5 mm.
    Depth: 0.0–0.5 feet below surface datum, square D3.

VI. *Tubular pipe of fired clay (13JH202–402)* (pl. 29, *c*): Fine grit temper, smoothed surface, core homogeneous and compact, conical body, rounded apex, opposing extremity fragmentary, ovoid hole asymmetric to long axis of body. The presence of pressure cracks indicates that the hole was pierced while the clay was still somewhat plastic. Functionally, the base of a pipe is suggested (see 13JH4, mound No. 6, above).
  Length: 46.5 mm.
  Maximum diameter: 16.5 mm.
  Depth: 0.5–1.0 foot below surface datum, square C2.

LITHIC MATERIALS

The sample of lithic materials totaled 40 objects.

I. *Stemless points.*
  - *A.* Triangular projectile points with side notches.
    - 1. Small points with side notches and flat base (sample: 2). Plate 23, *i*.
      Body: Symmetrically triangular, deep semilunate notches and irregularly flat base.
      Range of length: 23.5 mm.
      Range of width: 12.5–15.5 mm.
      Range of thickness: 3.5 mm.
      Cross section: Irregularly biconvex.
      Technique: Percussion, well controlled.
      Depth: 0.0–0.5 feet, 2.0–2.5 feet below surface datum, squares C2 and D1, respectively.

I. *Stemless points*—Continued

A. Triangular projectile points with side notches—Continued

2. Medium size point with deep side notches and convex base (13JH202–315). Plate 23, *h*.
    - Body: Convex-triangular.
    - Length: 42.0 mm.
    - Width: 25.5 mm.
    - Thickness: 12.0 mm.
    - Cross section: Irregularly biconvex, thick in relation to width.
    - Technique: Percussion, moderately well controlled.
    - Depth: 0.5–1.0 feet below surface datum, square C1.
3. Elongate point with parallel sides and blunt, flaring barbs (13JH202–71). Plate 23, *n*.
    - Body: Exceedingly elongate, parallel sides, convex-triangular point, deep semilunate side notches, flaring convex barbs, deep concave base.
    - Length: 116.0 mm.
    - Trans-barb width: 30.5 mm.
    - Body width: 25.0 mm.
    - Thickness: 10.0 mm.
    - Cross section: Irregularly biconvex.
    - Technique: Percussion, well controlled.
    - Depth: 1.0–1.5 feet below surface datum, square A1z.

B. Points with regular outline.

1. Convex-triangular point with rounded apex and flat base (13JH202–527). Plate 23, *o*.
    - Body: Parallel sides transcending into a convex point.
    - Length: 87.0 mm.
    - Width: 36.5 mm.
    - Thickness: 8.5 mm.
    - Cross section: Biconvex, thinned near apex.
    - Technique: Percussion, well controlled.
    - Depth: 2.0–2.5 feet below surface datum, square D1.
2. Convex-triangular points with irregular base (fragmentary) (sample: 2).
    - Length: 55.5 mm.
    - Width: 14.0, 26.0 mm.
    - Thickness: 4.0, 8.0 mm.
    - Cross section: Irregularly biconvex.
    - Technique: Percussion, poorly controlled.
    - Depth: 0.0–1.0 feet below surface datum, squares C2, G1.

II. *Stemmed points.*

A. Triangular point with corner notches, flaring stem, and flat base (13JH-202–693).

- Body: Convex, asymmetric outline, acute barbs, deep corner notches isolating an out-flaring tang, terminated by a flat base.
- Length: 50.5 mm.
- Width: 29.0 mm.
- Thickness: 4.5 mm.
- Cross section: Biconvex.
- Technique: Percussion, well controlled.
- Depth: 0.5–1.0 feet below surface datum, square G1.

II. *Stemmed points*—Continued

B. Triangular point with sloping shoulder and flat base (fragmentary) (13JH202–401). Plate 23, *m.*

Body: Elongate, isoscelene outline, narrow sloping shoulders, parallel-sided stem, flat base.
Length: Unknown.
Width: 26.5 mm.
Thickness: 9.0 mm.
Cross section: Biconvex.
Technique: Percussion, well controlled.
Depth: 0.5–1.0 feet below surface datum, square C2.

C. Miscellaneous points with slightly contracting stems (fragmentary, basal portions only) (sample: 2). Plate 23, *k.*

Depth: 0.0–0.5 feet below surface datum, squares C1, A2z.

III. *Knives and scrapers.*

A. Half-circular knife, retouched about entire periphery (13JH202–283). Plate 24, *c.*

Length: 57.5 mm.
Width: 42.0 mm.
Thickness: 6.5 mm.
Cross section: Biconvex.
Technique: Percussion.
Depth: 0.5–1.0 feet below surface datum, square B3.

B. Trapezoidal knife with one beveled, "sabre-like" extremity (13JH202–495). Plate 24, *d.*

Length: 50.0 mm.
Width: 27.0 mm.
Thickness: 5.5 mm.
Cross section: Biconvex but quite flattened.
Technique: Percussion.
Depth: 1.5–2.0 feet below surface datum, square D1.

C. Asymmetric knives with excurvate edge (sample: 3). Plate 24, *g.*

Range of length: 39.0–66.0 mm.
Range of width: 21.0–29.5 mm.
Range of thickness: 4.5–7.0 mm.
Cross section: Plano-convex.
Technique: Percussion.
Depth: 0.0–0.5 feet; 1.5–2.0 feet below surface datum, squares F2 and E2, respectively.

D. Irregular flakes with one or more retouched edges (sample: 9).

Depth: 0.0–1.0 feet; 1.5–2.5 feet; 3.0–3.5 feet below surface datum, in squares C1, C3, B2, D1, and E1.

E. Chipping debris, unaltered flakes, possibly used as scrapers (sample: 6). Distributed discontinuously from surface to the 4.0 foot depth.

IV. *Celts and choppers.*

A. Grooved ax, fragmentary (13JH202–274). Plate 25, *c.*

Form: Polished groove (¾ circumference), smooth polished poll, remaining surface unaltered.
Length: 86.5 mm.
Width: 59.5 mm.
Thickness: 29.0 mm.
Cross section: Plano-convex.
Technique: Pecking, polishing.
Depth: 4.0–4.5 feet below surface datum, square B2.

IV. *Celts and choppers*—Continued

B. Irregular stones with acute chopping edge (sample: 2).

Length: 113.0, 120.0 mm.
Width: 89.0, 86.0 mm.
Thickness: 51.0, 50.5 mm.
Cross section: Irregularly ovoid.
Technique: Use chipping only.
Depth: 0.5–1.0 feet; 1.5–2.0 feet below surface datum, squares C1 and D1, respectively.

V. *Hammerstones.*

A. Irregular stones with one or more pounded or pecked edges (sample: 9). Plates 25, *d;* 26, *b.*

Range of length: 68.0–117.0 mm.; mean, 86.4 mm.
Range of width: 48.5–88.5 mm.; mean, 73.0 mm.
Range of thickness: 34.0–61.0 mm.; mean, 47.6 mm.
Cross section: Irregularly ovoid.
Technique: Use pecking or pounding only.
Depth: 2.0–5.0 feet below surface datum, squares A1, A1z, A2, B1, B2, C1, D1.

B. Discoidal hammerstone with opposing "finger holds" (13JH202–209). Plate 26, *c.*

Length: 98.5 mm.
Width: 81.0 mm.
Thickness: 38.0 mm.
Cross section: Flattened ovoid.
Technique: Use pounding about periphery, "finger holds" are the result of natural erosion.
Depth: 4.0–4.5 feet below surface datum, square B1.

VI. *Polishing or abrading stones, one or more polished and striated surfaces (sample: 2).* Plate 25, *e.*

Length: 60.0, 89.5 mm.
Width: 52.5, 55.0 mm.
Thickness: 22.0, 33.5 mm.
Cross section: Trapezoidal to ovoid.
Technique: Use polish only.
Depth: 1.5–2.0 feet; 2.5–3.0 feet below surface datum, squares E1, C1, respectively.

BONE AND ANTLER MATERIALS

The sample of bone and antler materials totaled 15 objects.

I. *Splinter awls—fragmentary.*

A. Acute point, smoothed and polished (13JH202–617).

Length: 33.0 mm.
Width: 6.0 mm.
Thickness: 2.5 mm.
Cross section: Irregularly rectangular.
Technique: Splitting, grinding.
Depth: 0.0–0.5 feet below surface datum, square E1.

I. *Splinter awls—fragmentary*—Continued
  B. Acute point, irregularly formed, use polish evident at extremity (13JH-202-67).
    Length: 49.5 mm.
    Width: 9.0 mm.
    Thickness: 4.0 mm.
    Cross section: Irregular, original osseous surfaces intact.
    Technique: Use polish only.
    Depth: 0.5–1.0 feet below surface datum, square A1z.

II. *Unidentified bone objects.*
  A. Fragment of bone shaft, well smoothed, rounded extremity (13JH202-342).
    Length: 23.5 mm.
    Maximum diameter: 6.0 mm.
    Cross section: Smoothly ovoid.
    Technique: Grinding, polishing.
    Depth: 0.0–0.5 feet below surface datum, square C1.
  B. Proximal epiphysis of long bone, distal portion beveled to expose cancellous tissue (13JH202-178).
    Length: 28.5 mm.
    Width: 20.0 mm.
    Thickness: 14.0 mm.
    Depth: 0.5–1.0 feet below surface datum, square B1.

III. *Split and crushed bone (sample: 8).*
  Depth: 0.5–1.5 feet; 2.0–4.0 feet below surface datum, squares A2, B1, D1, E1.

IV. *Antler tines abraded at acute extremity (sample: 3).*
  Range of length: 14.0–47.5 mm.
  Range of maximum diameter: 8.0–14.0 mm.
  Two examples are calcined.

V. *European materials* (*sample: 26*).
  Bailing wire and barbed wire.
  Staples and nails.
  Fragments of a pressed-glass bottle.
  Window glass.
  Cup handle, heavy china.
  Tin can.
  Depth: 0.0–1.0 feet; 2.5–3.0 feet below surface datum, squares A1, B2, C1, C4, D1. Only a single example (13JH202-263), a cup handle of china, was found in the 2.5–3.0 feet level.

ANALYSIS

Ceramics

It is obvious that the ceramic sample constitutes, by all odds, the most significant group of materials recovered from Site 13JH202. In the preceding section, a series of discrete artifact units or groups has been presented. Each unit is based upon a cluster of traits; nonetheless the number of units and unitary sherd occurrences is still relatively large. It is probable, however, that many of the groupings might be fused into more inclusive units if the sample were larger.

Inspection of figures 20 and 21 suggests the following generalizations:

A. The vertical and horizontal distribution of the ceramic sample corresponds to physical stratum B.

B. There is a progressive quantitative increase in ceramic materials, extending from the lowermost portion of stratum B to the immediate subsurface of the deposit. A nonsignificant contraction is apparent in the disturbed surface level.

C. Ceramic remains undergo a quantitative change in variety from the lower to the uppermost portions of stratum B.

D. There is a progressive proliferation of "types" in the upper portion of the deposit.

E. Group A is quantitatively most significant, constituting 0.70 of the total sample. In terms of stratigraphic distribution, it is also the earliest and most persistent.

F. Other groupings, present in some length of sequence, are represented by short series, discontinuous distributions, or are lacking in homogeneity of unit.

Group A suggests an obvious similarity to Lake Michigan Ware and related or inclusive types (cf. Effigy Mound, Madison Cord Imprinted) characteristic of adjacent portions of Iowa, Illinois, Wisconsin, and Minnesota. A recent but largely generalized statement of this pottery, specifically that variety excavated from Effigy Mound Culture sites in Wisconsin, has been presented by Rowe (1956). Other descriptions were published somewhat earlier by McKern (1928, 1930; see also Bennett, 1945, pp. 80–81). Lake Michigan Ware, although ill defined, has been considered to fall within the Woodland tradition. Rowe (1956, p. 59) indicates that "This ware includes the pottery of the Effigy Mound type, but is so generalized and has a distributional range of such a nature that it cannot be considered diagnostic of the Effigy Mound Culture." It should also be noted that this is not the only pottery type present in the Effigy Mound sites (McKern, 1928, p. 268).

The Group A pottery of Woodpecker Cave is similar, but by no means identical with the Effigy Mound ceramics of Wisconsin. Vessel temper appears to be the same, or nearly so, but the temper of the Cave materials contains in addition many large and irregular inclusions. The latter pottery is characterized by a dense friable paste; the Wisconsin sherds, by all descriptions, have a much more porous texture. Similarly, the Coralville specimens are gray in color and are thin. In the Wisconsin grouping, the paste is of a reddish color and the sherds average relatively thicker.

A cord-marked surface is common to both, although there seems to be more evidence of smoothing in the Wisconsin grouping. Body and rim form also appear to be similar, but the Woodpecker Cave series does not emphasize the outflaring rim so common in the Wisconsin materials. Incurved rims, dominant in the Coralville collection, are of rarer occurrence in Wisconsin (Rowe, 1956, p. 62). A

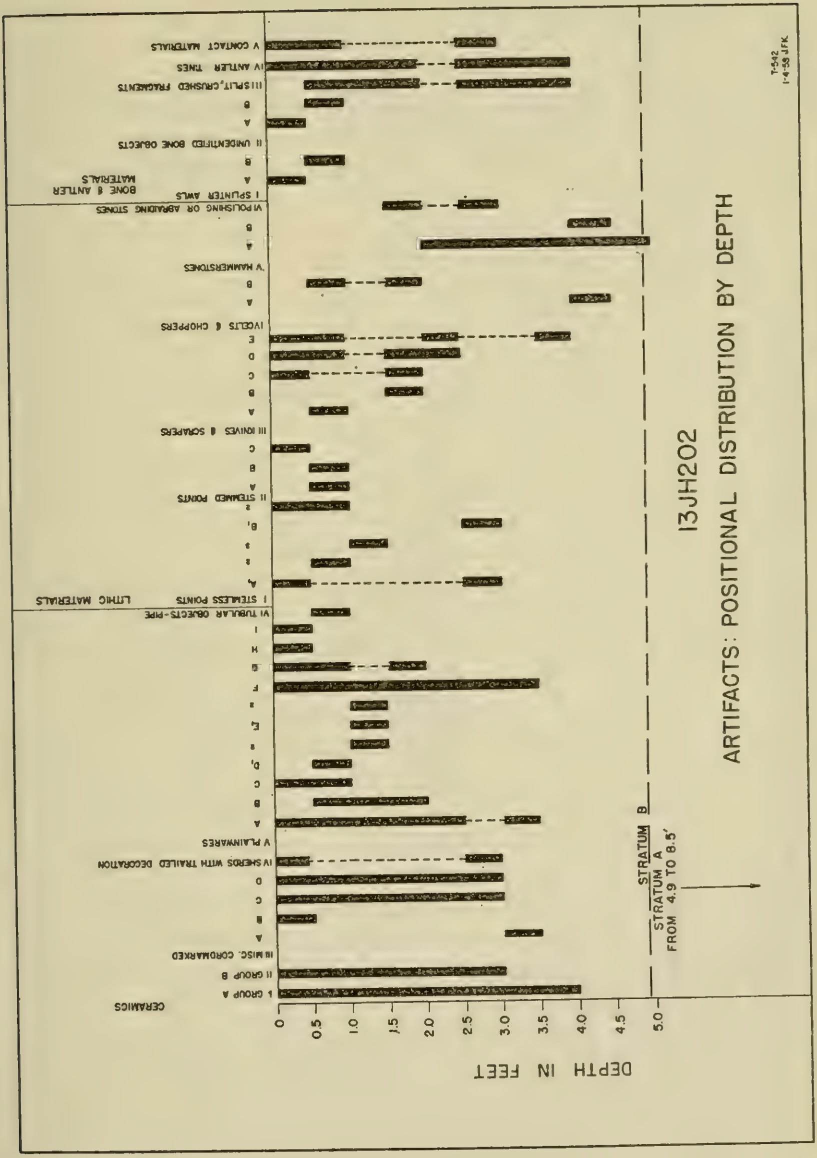

FIGURE 20.—13JH202. Artifacts: positional distribution by depth.

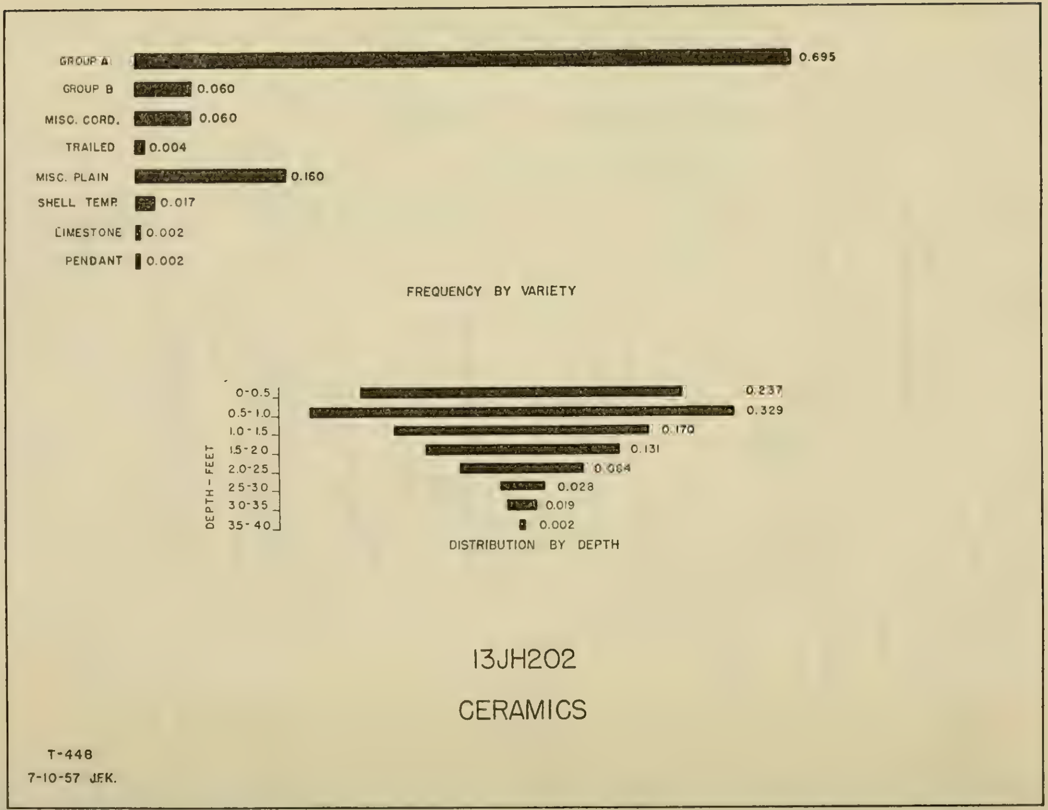

Figure 21.—Site 13JH202. Ceramics: Frequency distribution by variety and quantitative distribution by depth.

sherd suggesting a vessel with a "raised corner" orifice, illustrated by McKern (1928, pl. LIV, 9), parallels the single example from Woodpecker Cave.

Rowe indicates that there is great variation in the decoration of the Wisconsin Effigy Mound pottery. Like the Coralville specimens, decorative motifs are substantially limited to rim and shoulder, with single cord imprinting utilized as the commonest technique. Motifs are basically geometric in both potteries. Punctating and indenting of surfaces other than lip or upper rim is not frequent in the Woodpecker Cave series, and piercing of rims is dubious (a single pierced specimen occurs, the piercing seemingly for repair). Sherds with embossed nodes, such as occur in the Effigy Mound pottery, have not been included within group A. The rimsherd, 13JH202–264, categorized in the miscellaneous grouping (IIIA), is of this embossed type. The fact that this rimsherd was not sorted into group A merely reinforces the assumption of divergency within the Lake Michigan Ware and suggests the possibility of further regional categorizing. This sherd also closely resembles group B, identified as Havana Decorated Ware (below). While the evidence is far from conclusive, it stresses a potential Hopewell relationship for the Woodpecker Cave materials. Bennett notes that "Some of the sherds in Wisconsin closely resemble Hopewellian techniques and motifs" (Bennett, 1945, p. 83). The concurrent presence of "Plain Ware" further emphasizes a tie to the east. It should be noted, however, that Rowe (1956, p. 80) does not feel that Hopewell-Effigy Mound relationships in Wisconsin exist on more than a generalized trait basis.

Clear-cut "incising" does not exist in the Woodpecker Cave collection, but the two Trailed Sherds (IV) do have parallels in the Wisconsin materials. In total, the Effigy Mound Culture pottery of Wisconsin seems to emphasize more complex decorative motifs and to be more varied than does the much smaller Iowa sample. The latter stresses annular cord impressions and annular series of punctates on the rim rather than the more elaborate treatments found in Wisconsin.

Bennett (1945) notes that Lake Michigan pottery in Iowa "seems to be identical to Jo Daviess (Ill.) types." Although closely allied, the current sample is not completely consistent with the published data. Specifically, the decorative motifs appear to be somewhat less complex than the Jo Daviess materials. Emphasis is upon simple geometric cord-impressed motifs, occurring as horizontal bands on the rim or as pendant stamps on lip or shoulder.

There are also points of resemblance in common with the ceramics from mound No. 43 of the Suy-Magill group in northeastern Iowa (Beaubien, 1953 a, pp. 59–60). This is particularly evident in the band of cord-impressed decoration encircling the rim and in the series of oblique string impressions below the lip. The cord-imprinted "chevron" motif is not frequent at Woodpecker Cave, but it occurs, particularly on a single rimsherd from a vessel with a "raised corner" or eared mouth. Bennett (1945, p. 82) indicates that this form of orifice is lacking in Wisconsin (but see above); it suggests a possible relationship to the Tampico materials of Illinois (type 5, Cole and Deuel, 1937, p. 48; Schoenbeck, 1946).

Group B can be included within Havana Ware, specifically allied to the Naples Stamped variety (Griffin, 1952, pp. 107, 109). The excavated sample is much smaller than that of group A (fig. 21), but the temporal span is nearly as great (figs. 20, 21). The close similarity between Lake Michigan and Hopewellian body sherds has been noted in Jo Daviess County (Bennett, 1945, p. 82). A similar situation prevails at Site 13JH202. The plotted depth ranges of groups A and B are based upon both rim and body sherds so far as they can be unequivocally related. The category of Miscellaneous Cord-impressed sherds is composed of specimens nondistinctive as to temper and surface treatment. Individual units might relate either to group A or group B. On the basis of thickness alone they most closely suggest the latter. If they were so classed, it would extend the stratigraphic range almost to that of group A. Quantitatively, however, such a supergroup, by no means, could challenge the marked predominance of group A.

In Jo Daviess County, Bennett (ibid., p. 81) notes the "strong indication that Hopewellian and Effigy Mound were contemporaneous. . . ." Although admittedly based upon a small sample, the situation is substantially similar at Woodpecker Cave. There is, however, a slight priority of the Lake Michigan materials. It is of further interest that the Hopewellian pottery in the Jo Daviess sites appears to belong, preponderantly, to the Naples Stamped variety (ibid., p. 83).

The plain or unmarked Wares represented at 13JH202 are largely nondistinctive. They are also of limited occurrence. The sample is not homogeneous as to temper, color, or surface treatment. The distinctive punctated lip, however, suggests an affiliation with the Weaver Plain category as defined for Illinois (Griffin, 1952, p. 121; type 3a, Cole and Deuel, 1937, p. 47). Griffin (op. cit.) notes a gradual shift from specific varieties of Havana Ware to Weaver in the central Illinois River Valley. At 13JH202, it is perhaps significant that the Weaver-like rim sherds are relatively late in terms of the ceramic sequence.

Shell-tempered sherds are few and nondefinitive. Stratigraphically, they occur in a discontinuous pattern within the upper half of the sequence. Shell-tempered pottery and probable Lake Michigan Ware are coeval at Lee Mill Cave (Johnson and Taylor, 1956, p. 11) in southeastern Minnesota. A similar situation is noted for the Mille Lacs Aspect, Kathio Focus (Wilford, 1955, p. 135).

Lithic and Other Materials

Plotted distributions within the site are based upon a small sample: typological groupings are small, and obviously are not a suitable basis for a detailed comparative attack.

Projectile points.—The relationship or association of specific point types with temporal and regional pottery assemblages in Iowa is currently unknown. Further, the situation is by no means entirely clear throughout the upper Mississippi Valley. Only local associations are known in some detail. Despite the obvious inadequacies in the current sample and in the comparative data, the following generalizations are offered (figs. 20, 22).

Projectile points or pointlike knives occur only in the upper portions of the deposit. The vertical distribution is entirely above the 2.5-foot level. Within this stratigraphic range, stemless projectile points with regular or notched margins are slightly more frequent than stemmed forms. Further, the stemless forms exhibit a discontinuous but considerably longer continuity than do the stemmed examples. With three exceptions, the point inventory can be related to a generalized middle to late Woodland category. Specific analogues are frequent in Illinois, southwestern Wisconsin, southeastern Minnesota, and in northeastern Iowa (see Rowe, 1956, figs. 23, 25). Three small, triangular points, two with side notches (Cole and Deuel, 1937, type 4), suggest a Mississipian tie. Two examples were excavated from the 0.0–0.5 foot level, the other from the 2.0–2.5 foot level, the latter in an area of rodent disturbance. It seems probable, in the light of other associated data, that all three can be attributed to the most recent horizon of the deposit. Bennett (1945, p. 91) notes that similar points, lacking side notches, are associated with Lake Michigan pottery in a late context from Wisconsin. A similar association is present in Minnesota (Wilford, 1955) and in Jo Daviess County, Ill. (Bennett, 1945, p. 75).

Knives–scrapers.—Knife or scraper forms are discontinuously distributed throughout the ceramic horizon of the occupation. Specialized varieties (A, B above), however, are restricted in number and do not occur below the 2.0-foot level. It is unfortunate that the knife-scraper sample is not sensitive in terms of available comparative material.

Celts, choppers, hammerstones.—Chopping tools are restricted to the upper portion of the ceramic horizon, but only one distinctive or specialized form was recovered—a "Woodland" grooved ax of nonspecific comparative value. Hammerstones, while relatively abundant, are limited to the lower half of the ceramic occupation.

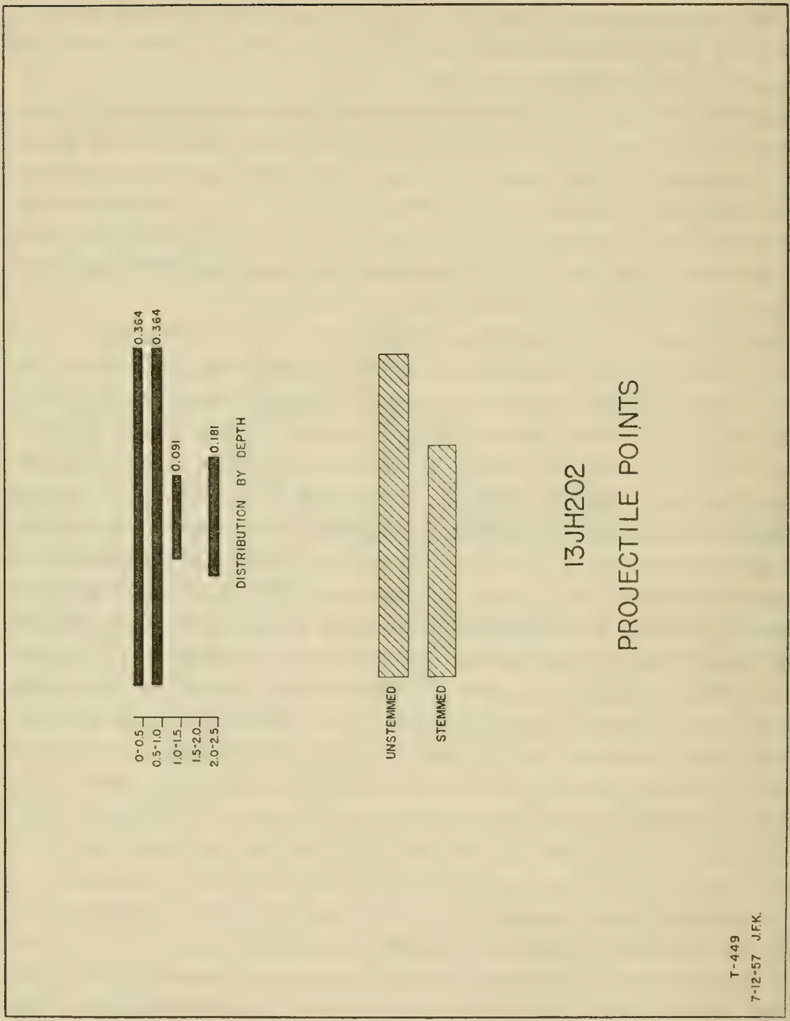

Figure 22.—Site 13JH202. Projectile points: Quantitative distribution by depth and stemmed and unstemmed data.

Bone–antler.—Bone and antler remnants evidencing human alteration occur throughout the ceramic horizon, but definitive tools (splinter awls) occur only in surface levels. They have limited comparative value.

European Materials

European materials are concentrated in the upper portion of the deposit, with one exception noted at the 2.5–3.0-foot level. The latter lies within a locus of extreme rodent penetration. The object, a china cup handle, obviously represents a later intrusion.

ANALYSIS OF SITE 13JH202

The aboriginal occupation of 13JH202, as expressed in terms of stratigraphic depth, was a relatively long one. The lower levels (stratum A) cannot be equated accurately to any particular cultural manifestation or temporal range. The physical transition from stratum A into stratum B is not markedly abrupt; however, a slight disconformity is present within the northern and northeastern portions of the deposit. Currently, there seems no reason to attribute substantial age to stratum A. In terms of subsistence orientation, A is identical with B, but with the latter suggesting a greater intensity of occupation. Stratum A contains a much heavier accumulation of rock fall than does B. It seems necessary to assume that there was somewhat heavier precipitation, at least seasonally, during the span of stratum A. The occupation of stratum A must have been seasonal. Winter and spring frost action would have rendered the site untenable. Stratum B indicates much more stability and hence presents the possibility of long-term, annual occupations. The definitive occupation of the latter stratum falls within the middle to late Woodland range, possibly very late, in the terminal phases.

The local unconformity separating strata A and B suggests only a slight and local stabilization of surface. Therefore it seems reasonable to consider the deposits of A as representing Archaic or early Woodland seasonal camp debris with no necessary connotation of extreme age.

The overwhelming dominance of a single ceramic type within stratum B suggests the presence of only a single component. In terms of the published data, this horizon most closely resembles the occupation of Minott's Rock Shelter (Keyes, 1943), situated in Linn County, Iowa, appromixately 12 miles northeast of 13JH202. Although the Minott presentation is lacking in detail, the major ceramic and lithic remains appear to be quite similar. Cord-marked Lake Michigan ware is dominant at both sites. In addition, the ashy, shell-and-bone-bearing cultural stratum in the Minott shelter (ibid., pp. 23, 31–32) appears substantially similar to stratum B (above).

Large leaf-shaped knives occur at the Minott Site (ibid., p. 25), but not at 13JH202 (cf. Beaubien, 1953, fig. 21, p. 60). On the other hand, the latter site has produced a wider range of pottery types. Havana ware does not appear to be present at the Minott Shelter. Plain ware with a hemiconical lip stamp (Weaver?) was found in both excavations, but is apparently considerably more common at 13JH202 (Keyes, 1943, p. 38). A single rimsherd bearing an incised, cross-hatched rim motif (ibid.) has no counterpart at the 13JH202 site. The hatched rim suggests a more specific Hopewell affiliation.

Specifically, Minott's Rock Shelter and Site 13JH202 are similar, but are not identical manifestations, probably relatable to a single focus. Again, published data are lacking, and therefore a firm statement is impossible. A tentative suggestion of relationship to Maquoketa "Aspect" or Ryan Focus, though, is offered as reasonable (Logan, 1955, p. 132).

SITE 13JH203

Site 13JH203 is a small rock shelter formed by an abrupt overhang of the limestone rimrock overlooking the westernmost meander of Turkey Creek, an eastern affluent of the Iowa River. A triangular occupation platform is present (25.0 feet wide at the base and 9.0 feet deep). Shallow tests revealed a brown-black organic matrix containing abundant rock fall, small amounts of shattered bone, and fragments of charcoal. No artifacts were recovered.

SITE 13JH204

The habitation platform of this small rock shelter is covered by a low, narrow overhang (5.0–6.0 feet wide), approximately 8 feet below the rim of a sheer bluff overlooking the westernmost meander of Turkey Creek. Limited tests indicated the presence of an organic "cave soil" matrix, but no definite evidence of human occupation was recovered.

SITE 13JH205

The occupation area of Site 13JH205 is situated upon a low triangular remnant of the first terrace above the narrow Iowa River flood plain (fig. 23). The site is peninsular to a high limestone bluff forming the eastern periphery of the Crosheck River flat. The site is separated by an extensive silted creek sytsem from the easternmost portion of Site 13JH2. The area is heavily forested, but is lacking in minor ground cover.

The site was sampled by a series of trenches and pits based on a 5-foot grid pattern, recorded numerically along the approximate north-south axis and alphabetically along the opposite axis. Vertical controls were based upon 0.5-foot excavation levels. Four additional test pits were excavated to investigate the eastern portion of the site.

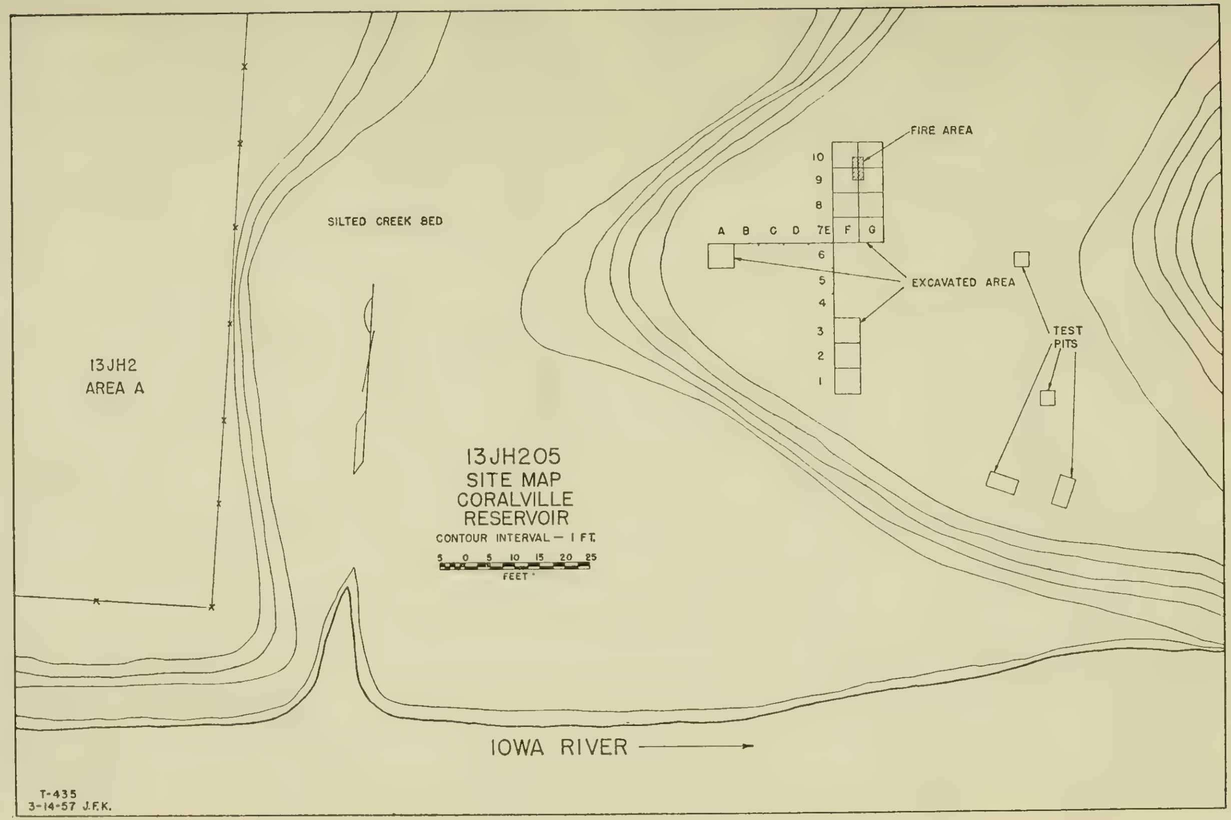
FIRE AREA
10
9
8
A B C D 7E F G
6
5
4
3
2
1
EXCAVATED AREA
TEST PITS
SILTED CREEK BED
13JH2
AREA A
13JH205
SITE MAP
CORALVILLE
RESERVOIR
CONTOUR INTERVAL — 1 FT.
5 0 5 10 15 20 25
FEET
IOWA RIVER
T-435
3-14-57 J.F.K.

Figure 23.—13JH205, site map.

STRATIGRAPHY

Two distinct strata were present, the upper transcending gradually into the lower.

A. Basally, the fill is composed of a yellow-brown matrix containing infrequent limestone slabs and waterworn pebbles. Although this stratum may be water deposited in part, it seems equivalent to the normal field matrix indigenous to the locality.

B. Overlying A, and widening to a thickness of approximately 0.8 feet, occurs a gray-black silt containing an abundant organic increment. This deposit is the result of flood deposition and the decay of forest litter.

A definite hearth, covering an area of 4.4 × 2.6 feet, was noted in squares F9, G9, F10, and G10. Dense ash was first encountered in stratum B at a depth of 0.5 foot. The ash deposit extended downward into stratum A to a maximum depth of 1.1 feet from surface. An irregular lensatic profile was characteristic, feathering to a thin, diffuse margin. The hearth originated in stratum B, the lowermost portion penetrating only slightly (0.25 foot) into stratum A. Adjacent to the dense ash of the fire area were numerous flint chips and widely distributed fragments of blue-white china and stoneware. A grooved ax of diorite was recovered at a depth of 0.5 foot below the hearth. (Square F10.)

ARTIFACTS

Aboriginal artifacts excavated from Site 13JH205 are notably few and remarkably nondescript. Except objects of European origin, only lithic materials are present. Local reports suggest that, in addition, Oneota pottery has been collected from the site.

1. *Subtriangular projectile point with slightly convex base (13JH205-1).* Plate 23, *j*.
   Length: 28.0 mm.
   Width: 14.0 mm.
   Thickness: 4.5 mm.
   Cross section: Biconvex, basal portion plano-convex.
   Technique: Well-controlled percussion flaking.
   Depth: Surface find.
2. *Heavy, crudely chipped blades, one convex extremity, fragmentary (sample: 4).* Plate 24, *j*.
   Range of length: Unknown.
   Range of width: 33.5–50.5 mm.
   Range of thickness: 9.0–13.0 mm.
   Cross section: Roughly biconvex.
   Technique: Percussion, crudely flaked, no evidence of use polishing, considerable areas of unaltered cortex present on one specimen (13JH202–29).
   Depth: 0.0–2.0 foot below surface datum, squares F7, F8, F9.

3. *Miscellaneous projectile point fragments.*
    a. Basal fragment, small triangular point (13JH205–55).
        Length: Unknown.
        Width: 16.0 mm.
        Thickness: 6.0 mm.
        Cross section: Biconvex.
        Technique: Percussion, well controlled.
        Depth: 1.0 feet below surface datum, square A6.
    b. Basal fragment, probably stemmed with corner notch (13JH205–54).
        Cross section: Biconvex.
        Technique: Percussion, well controlled.
        Depth: 1.0 foot below surface datum, square A6.
    c. Apical portion, probable triangular projectile point (13JH205–28).
        Length: Unknown.
        Width: Unknown.
        Thickness: 6.5 mm.
        Cross section: Biconvex.
        Technique: Percussion, well controlled.
        Depth: 0.5 foot below surface datum, square F8.
4. *Irregular flakes with one or more retouching edges (sample: 6).*
    Cross section: Irregular.
    Technique: Mere selection of flake, retouching derives from use manipulation only.
    Depth: 0.0–1.5 foot below surface datum, squares F7, F8, F9.
5. *Chipping debris (sample: 93).*
    Depth: 0.0–2.0 foot below surface datum in all excavated squares.
6. *Full grooved ax.*—Deeply grooved about entire circumference, groove separated from tapering irregular poll by narrow flange, body and bit pecked and ground, extreme edge of bit highly polished, upper edge of body ground flat, original cortex of stone unaltered over 25 percent of surface (13JH205–48). Plate 26, *a.*
    Length: 198.0 mm.
    Width: 91.0 mm.
    Thickness: 55.0 mm.
    Cross section: Irregularly ovoid.
    Technique: Pecked and ground.
    Depth: 1.5–2.0 foot below surface datum, square F10.
7. *Tabular hammerstones with battered peripheries;* two examples show secondary usage as anvils (sample: 4). Plate 25, *f.*
    Range of length: 80.0–103.0 mm.
    Range of width: 76.5–98.0 mm.
    Range of thickness: 26.0–46.0 mm.
    Cross section: Irregularly ovoid, flattened.
    Technique: Use battering only.
    Depth:' 0.0–1.0 foot; 1.5–2.0 feet below surface datum, squares A6, F3, F8 and F10.
8. *European contact materials.*[3]
    Whiteware: "Feather-edge" motif, underglaze, small fragments, probably comprising a single plate or saucer. Plate 29, *e, f.*

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[3] Analysis provided by G. Hubert Smith, archeologist, Missouri Basin Project, River Basin Surveys, Smithsonian Institution.

Stoneware: Fragments of a hand-thrown jug, narrow base ring, expanding body, probably with handle. Plate 29, *g*.

Glass: A single basal fragment of a modern milk bottle.

Metal: Fragment of firebox from an iron stove, probably of the "potbellied" type.

Depth: 0.0–1.0 foot below surface datum, squares, A6, F1, F3, F7, F8, F9, and F10.

The "feather-edge" pattern, characteristic of the Whiteware specimens, has a long continuity of use. It extends, in derived form, well into the contemporary period. The utilization of an underglaze process, as distinct from later transfer methods, suggests an early 19th century date. The stoneware jug most probably falls within the same period. Both wares at 13JH205 have been subject to a high oxidizing heat, possibly in the hearth described above. It is also possible that the ultimate shattering of the jug is attributable to the same cause. Marked variation in the surface condition of the sherds suggests exposure to heat, hence the suggestion of damage in use. If this assumption is valid, then the hearth and associated aboriginal artifacts indicate an occupation coeval with the European settlement of the region. The fragments of glass and iron are most logically explained as recent intrusions.

ANALYSIS

The material return from Site 13JH205 (fig. 24) is exceedingly limited in quantity and not particularly meaningful in variety. The following systematization is offered in all cognizance of the inherent limitations of the data.

Surface: Small triangular projectile point, probably Oneota pottery (?), contact goods.

Subsurface: Stratum B (humus and silt zone)—heavy blades (probably digging tools) triangular and corner-notched points, chipping debris, irregular scraping and cutting tools, contact goods. Stratum A—(yellow-brown clay zone)—heavy blades (probably digging tools), three-quarter grooved ax.

The upper levels of the midden have obviously been subject to flood disruption and redeposition. Nonetheless, on a typological basis, the suggested sequence appears to be valid; a thin Woodland occupation succeeded by an equally scanty Oneota residence. The latter is coeval with or followed by historical contact. The china suggests a date commensurate with the first white settlement of the area. This pattern suggests the Oneota-Woodland relationships noted elsewhere in Iowa (Mott, 1938, pp. 290–291).

SITE 13JH206

Evidences of occupation occur along the crest of a low knoll 75 yards east of the Iowa River and approximately 100 feet above mean

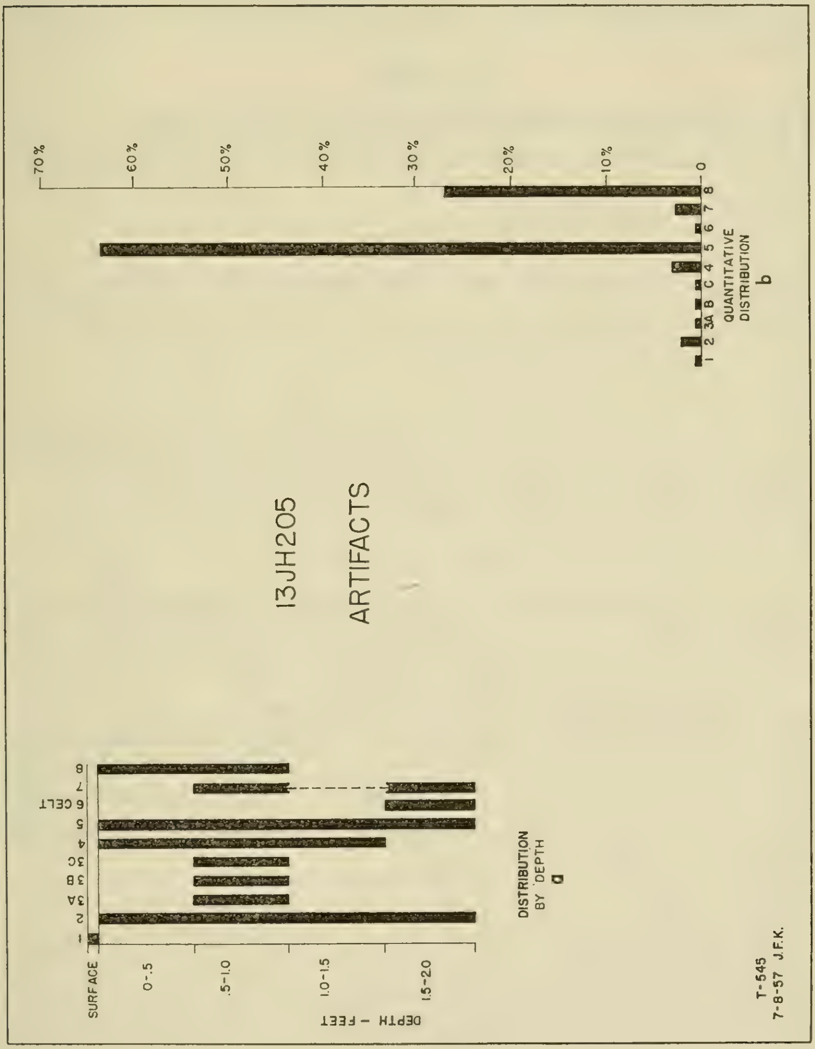

FIGURE 24.—Site 13JH205. Artifacts: *a*, distribution by depth; *b*, quantitative distribution.

low water level. Chipping debris is abundant in a road cut through the apex of the knoll and north along the ensuing ridge, paralleling the river for 200 feet. Limited tests produced no definable artifacts, but did indicate that the lithic material derives from the surface of the dense loessic clay occurring just below the sod line (cf. 13JH201).

ARTIFACTS

The only artifacts from Site 13JH206 were surface finds.

1. *Basal fragment, corner-notched stemmed point* (*13JH206–1*). Plate 23, *l*.
2. *Large flake of chalcedony* (*13JH206–2*).
3. *Chipping debris* (*sample:* 7).

ANALYSIS

No exact cultural tie can be indicated. The corner-notched, stemmed point suggests a generalized "Woodland" affiliation.

SITE 13JH207

The occupation is denoted by scanty midden debris accumulated on a narrow alluvial flat formed by a small, west-flowing tributary of the Iowa River. Limited tests revealed no artifacts; however, a small shell constituent was apparent.

SITE 13JH208

A scanty occurrence of chipping debris was noted at the crest of a high ridge above and just east of the Iowa River. No testing was done, but a small, nondefinitive surface collection was obtained. Local informants indicate that numerous artifacts have been recovered from the field below the site, but exact data was unobtainable.

ARTIFACTS

1. *Side-notched scraper, rounded beveled bit, deep side notches, flaring stem, convex base* (*13JH208–1*). Plate 24, *f*.
   Length: 32.0 mm.
   Width: 23.5 mm.
   Thickness: 10.0 mm.
   Cross section: Biconvex, plano convex bit.
   Technique: Percussion, carefully controlled.
2. *Fragment, corner-notched point* (*13JH208–2*).

ANALYSIS

As was the case with 13JH206, the data are far too scanty to indicate a specific relationship.

THE FORST SITE (13JH209)

Scanty lithic debris was noted on the north slope of a small valley confluent with a southwest-flowing tributary of the Iowa River.

Cultural materials have been periodically exposed in the deeply eroded lane connecting the Charles Forst farmstead with the pastures beyond. No tests were made, but artifacts appear to derive from the surface of the loess, just below the sod line. Mr. Forst has accumulated a small collection, which was made available for photographing.

ARTIFACTS

Only a brief field examination of the Forst Collection was practicable.

1. *Stemless projectile points.*
    - *a.* Asymmetric triangular body, flat base (sample: 1).
    - *b.* Small triangular body, deep side notches, convex base (sample: 1) (type 3, Cole and Deuel, 1937, p. 55). Suggests Maples Mills.
2. *Stemmed projectile points.*
    - *a.* Large triangular body, abrupt shoulder, stem form unknown (sample 2).
    - *b.* Medium size, triangular body, squared or slightly expanding stem, flat or convex base (sample: 7) (type 1, ibid., pp. 53, 55). "Woodland" points.
    - *c.* Medium size, triangular body, corner-notched, acute barbs, expanding stem, conclave base (sample: 1).
    - *d.* Small subtriangular body, wide corner notch, expanding stem (sample: 1).
    - *e.* Large, markedly convex, triangular body, deep corner notches, stem fragmentary (sample: 3) (type 1, ibid.). Conventionally, a Hopewell form.
    - *f.* Leaf-shaped body, contracting, tonguelike stem (sample 1) (type 2, ibid., p. 55). Suggests Red Ochre form.

ANALYSIS

In total, a small range of projectile point types is present, but a range of types tentatively assignable to a considerable temporal span. Early, Middle, and Late Woodland forms, as defined for the Illinois River Valley, are present. (Cf. 13JH201, above.)

SITE 13JH210

The occupation area is situated on the crest of the first ridge west of the Iowa River, directly opposite Sites 13JH207 and 13JH208. No tests were possible nor were surface finds noted in situ. The previous owner, Albert Bane, has gathered a small collection from the site as a result of long-continued farming activities, but currently it is not available for study.

SUMMARY OF CONCLUSIONS

The archeological manifestations in the Coralville Reservoir are characterized by a minimal quantity and by a restricted variety of information. A brief recapitulation of field activities is indicated below:

13JH1—Visited only
13JH2—Tested, surface collection
13JH3—Tested
13JH4—Tested
13JH5—Not visited
13JH6—Visited only
13JH7—Visited only
13JH8—Not visited
13JH9—Not visited
13JH201—Tested, surface collection examined
13JH202—Excavated
13JH203—Tested
13JH204—Tested
13JH205—Tested
13JH206—Tested
13JH207—Tested
13JH208—Surface collection
13JH209—Visited, surface collection examined
13JH210—Visited

The following generalizations are offered in full awareness of the patent limitations of the data:

(1) The occupation is represented by mound structures, open occupation sites, and rock shelters.

(2) Mound structures, restricted to ridge tops overlooking the Iowa River or its confluents, are of both linear and conical forms.

(3) Both varieties probably represent complementary portions of a single pattern that is related to the Effigy-Linear Complex of northwestern Illinois and adjacent areas.

(4) Open occupation sites are situated both on ridgetops and on riverine flats.

(*a*) Sites investigated in the former areas are non- (not necessarily pre-) ceramic, with a possible Archaic-Woodland temporal range.

(*b*) Rivertime sites are much disturbed by flood action. Pottery has not been excavated, but informants indicate its presence. An Archaic–Oneota–Historic range is suggested.

(5) Restricted by local topography, rock shelters are infrequent. The single excavated shelter suggested two components, a nonceramic(?) horizon, succeeded by a Middle-Late Woodland pottery zone. Probable relationship lies with foci in northeastern Iowa and adjacent portions of Illinois, Wisconsin, and Minnesota.

On the basis of the preceding presentation a Mid- to Late-Woodland affiliation can be fairly demonstrated for Sites 13JH3 and 13JH4, and for the ceramic component of Woodpecker Cave (13JH202). A similar, although admittedly less definitive relationship, is suggested for portions of the inventory recovered from Sites 13JH2, 13JH201, 13JH205, and 13JH209. Traits characteristic of the Oneota Aspect are not unequivocally present in any of the excavated materials. Upon the basis of local information, however, Sites 13JH2 and 13JH205 have been assigned Oneota components, the latter with a transition into the European contact period.

The Archaic Pattern is much more difficult to document. Nowhere in the data is there satisfactory evidence of stratification or of more than putative typological similarity. Nonetheless, and this quite tentatively, a component of Site 13JH2 is suggested as being within the Archaic range.

Apparent spatial relationships lie with cultural manifestations to the east and northeast. The major apparent emphasis lies with the Effigy Mound Culture of northwestern Illinois and southern Wisconsin, although closer ties with as yet undefined foci in Iowa are suggested.

In total, the aboriginal occupation of the Coralville Reservoir was not intensive. An extended temporal range is indicated, but at no time was population numerous. There is no reason to consider the area more than peripheral to adjacent developments. Beaubien (1953 a, p. 56) has noted that northeastern Iowa is "clearly marginal to the primary growth of both cultures [Hopewell, and Effigy Mound Aspect], and it is not evident that a 'pure' complex of either has been strongly developed in the area."

The Coralville data strongly reinforce this presumption. It is evident that a generic tie to Effigy Mound and Hopewell exists, but a detailed statement of areal-temporal relationship on a focus or aspect level must await future excavation and mature synthesis.

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APPENDIX 1. MOLLUSCAN REMAINS

Identifiable shell materials were excavated from three sites, 13JH202, 13JH207, and 13JH208. During the excavation of Woodpecker Cave it was impossible, of course, to note every specimen, but an effort was made to select a representative sample from each excavation level. The following identifications were provided by Dr. Joseph P. E. Morrison, associate curator, Division of Mollusks, U.S. National Museum:

MUSSEL SHELLS

13JH202:
- Quadrulidae (Quadrulinae):
  - *Fusconaia undata* (Barnes).
  - *Fusconaia flava* (Rafinesque).
  - *Crenodonta costata* (Rafinesque).
  - *Quadrula metanerva* (Rafinesque).
  - *Quadrula pustulosa* (Lea).
  - *Tritigonia verrucosa* (Rafinesque).
  - *Cyclonaias tuberculata* (Rafinesque).
  - *Plethobasus cyphus* (Rafinesque).
  - *Pleurobema coccineum* (Conrad).
  - *Elliptio dilatatus* (Rafinesque).

13JH207:
- Quadrulidae (Quadrulinae):
  - *Crenodonta costata* (Rafinesque).

  - *Quadrula pustulosa* (Lea).
- Quadrulidae (Lampsilinae):
  - *Actinonaias carinata* (Barnes).
  - *Actinonaias ellipsiformis* (Conrad).
  - *Ligumia recta latissima* (Rafinesque)
  - *Lampsilis anodontoides* (Lea).
  - *Lampsilis siliquoidea* (Barnes).
  - *Lampsilis cardium* (Rafinesque).
  - *Dysnomia triquetra* (Rafinesque).
- Unionidae (Anodontinae):
  - *Lasmigona costata* (Rafinesque).
  - *Alasmidonta marginata* (Say).
  - *Strophitus rugosus* (Swainson).

LAND SNAIL SHELLS

13JH202:
- Endodontidae:
  - *Anguispira alternata* (Say).
- Polygyridae:
  - *Stenotrema hirsutum* (Say).
  - *Stenotrema leai* (Ward).
  - *Mesodon clausus* (Say).
  - *Triodopsis albolabris* (Say).
  - *Triodopsis multilineata* (Say).
  - *Allogona profunda* (Say).
- Haplotrematidae:
  - *Haplotrema concavum* (Say).

13JH208:
- Polygryridae:
  - *Allogona profunda* (Say).

Only the data from Site 13JH202 is of quantitative significance. The positional occurrence of each sampling division was not plotted since in total they represent selected units. It is apparent, however, that there is no patterned alteration in species from the deepest to the uppermost levels of the site. Further, no species is in a position of preponderant numerical dominance although *Elliptio dilatatus* (Rafinesque) is perhaps of most frequent occurrence. While many specimens, particularly the land snails (Endodontidae, Polygyridae, Haplotrematidae), are doubtless of incidental or intrusive origin, most of the species were undoubtedly collected as foodstuffs.

APPENDIX 2. MAMMAL REMAINS

Site 13JH202 produced the only significant identifiable mammalian remains. An effort was made to retain *all* identifiable bone fragments. Except the minute fragments from stratum A, the substantial total of excavated specimens is included. The sample, therefore, would seem to provide a reasonable index of the mammal constituent of the site, quantitatively and qualitatively. By the very nature of the material, precise speciation was impractical, hence placement is on the genus level only. Identifications were provided by Dr. Theodore E. White, paleontologist, U.S. National Park Service. In table 1, they are listed in terms of quantity and depth.

TABLE 1.—*Mammalian remains from Site 13JH202 in terms of quantity and depth*

Mammal	Mammalian remains found at indicated depth (feet)																	Total
	0–0.5	0.5–1.0	1.0–1.5	1.5–2.0	2.0–2.5	2.5–3.0	3.0–3.5	3.5–4.0	4.0–4.5	4.5–5.0	5.0–5.5	5.5–6.0	6.0–6.5	6.5–7.0	7.0–7.5	7.5–8.0	8.0–8.5	
Odocoileus (deer)	[1]13	15	14	10	9	9	4	4	3	----	----	----	----	----	----	----	----	81
Marmota (woodchuck)	7	6	5	3	2	2	2	2	1	----	----	----	----	----	----	----	----	30
Sylvilagus (cottontail rabbit)	4	3	2	1	1	1	----	1	----	----	----	----	----	----	----	----	----	13
Scalopus (mole)	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	1
Castor (beaver)	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	1
Canis (dog or doglike)	7	3	2	1	1	1	----	----	----	----	----	----	----	----	----	----	----	15
Sciurus (squirrel)	1	1	1	----	----	----	1	1	----	----	----	----	----	----	----	----	----	5
Geomys (gopher)	4	3	3	----	2	1	1	----	----	----	----	----	----	----	----	----	----	14
Procyon (raccoon)	6	4	6	2	2	1	----	----	----	----	----	----	----	----	----	----	----	21
Lynx (bobcat)	----	1	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	2
Ondatra (muskrat)	1	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	2
Mephitis (skunk)	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1
Taxidea (badger)	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1

[1] The total of catalog lots in each depth range.

Inspection of table 1 indicates the following:

(1) No animal bone, identifiable as to genus, occurs below the 4.5 foot level.

(2) The greatest concentration of identifiable mammalian remains lies above the 1.5 or 2.0-foot level.

(3) Deer remains constitute the largest single taxonomic unit.

(4) Other remains are substantially less frequent. The dog, the raccoon, the cottontail rabbit, the woodchuck, and the gopher are well represented, but only the dog need be equated to the aboriginal occupation, and it not unequivocally. As noted elsewhere, the deposits, in part, are badly disrupted by burrowing animals, thus readily accounting for the rodents in the collection.

APPENDIX 3. HUMAN REMAINS

Human skeletal material was excavated only at Site 13JH202. No apparent burial was noted; however, fragments of human bone were scattered throughout the deposit. The following remains were recovered:

(1) Occipital fragment, including torus.
(2) Two frontal fragments, including upper margin of left orbit.
(3) Right squamous, including a portion of the zygomatic process.
(4) Lower ramus and right body portion of mandible, second and third molars present, the former badly worn, cusp pattern obliterated.
(5) Proximal articular surface of right femur, calcined.
(6) Unidentified vault fragments.

At least two individuals are represented. One, at least, is probably subadult.

APPENDIX 4. VEGETAL REMAINS

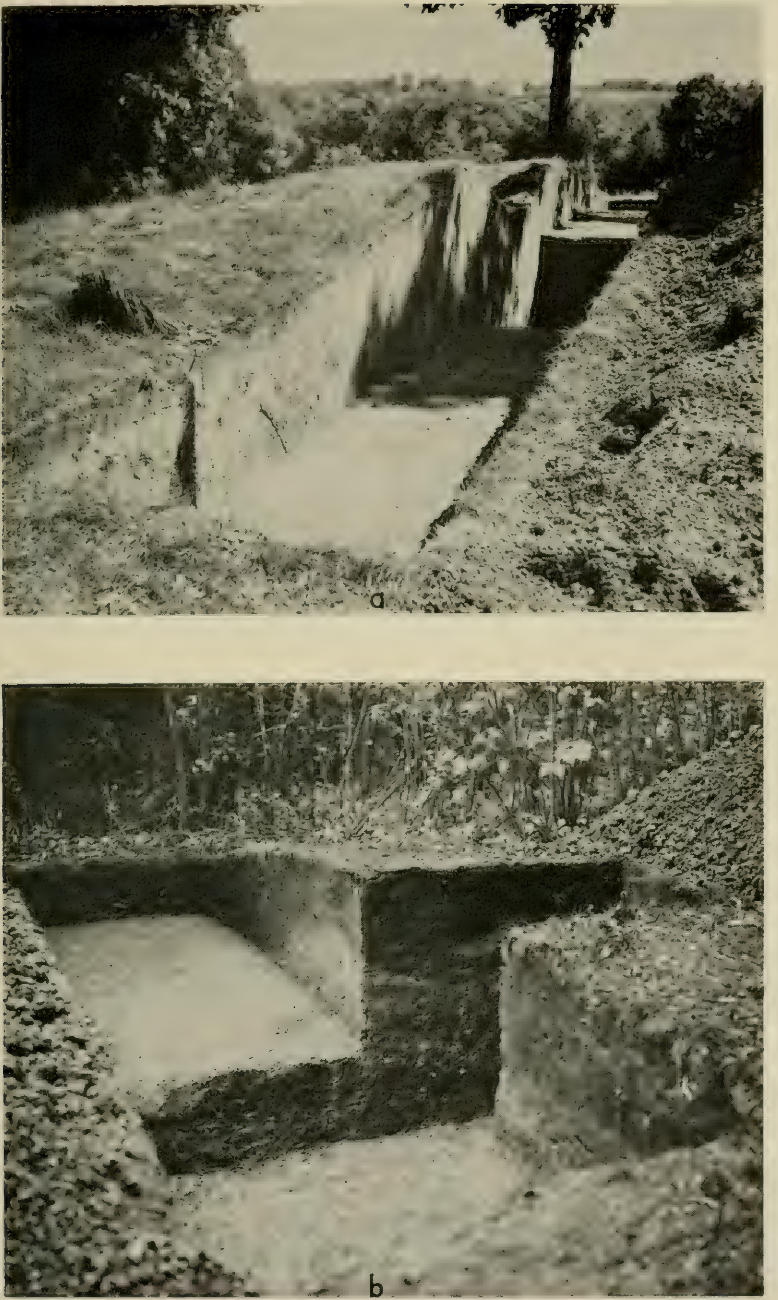
All vegetal materials recovered from Site 13JH202 were retained for possible identification. The total sample is small, consisting largely of nuts or shells. Identifications have been provided by Dr. Norton H. Nickerson, Department of Botany, Cornell University. In table 2, the remains are listed by quantity and depth.

TABLE 2.—*Vegetal remains recovered from Site 13JH202 by quantity and depth*

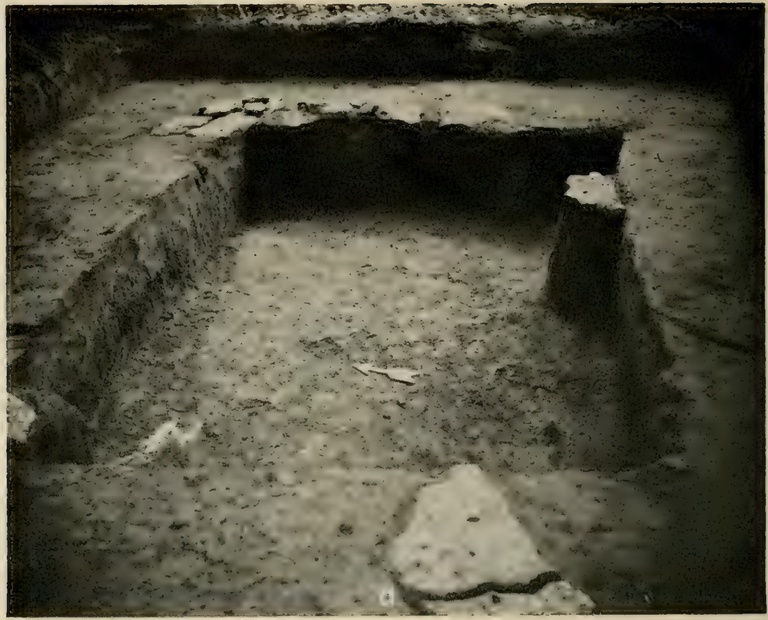
	Vegetal remains found at indicated depth (feet)																	
	0–0.5	0.5–1.0	1.0–1.5	1.5–2.0	2.0–2.5	2.5–3.0	3.0–3.5	3.5–4.0	4.0–4.5	4.5–5.0	5.0–5.5	5.5–6.0	6.0–6.5	6.5–7.0	7.0–7.5	7.5–8.0	8.0–8.5	Total
Carya cordiformis (bitternut hickory)	[1] 2	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	3
Carya glabra (pignut hickory)	----	1	2	----	1	----	----	----	----	----	----	----	----	----	----	----	----	4
Carya ovata (shagback hickory)	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1
Juglans cinerea (butternut)	4	1	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	6
Juglans nigra (black walnut)	6	4	2	1	3	----	----	----	----	----	----	----	----	----	----	----	----	16
Corylus americana (hazelnut)	1	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	2
Arisaema atrorubins (Indian turnip)	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1
Quercus palustris (pin oak)	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1

[1] Total indicates number of catalog lots, not individual vegetal specimens.

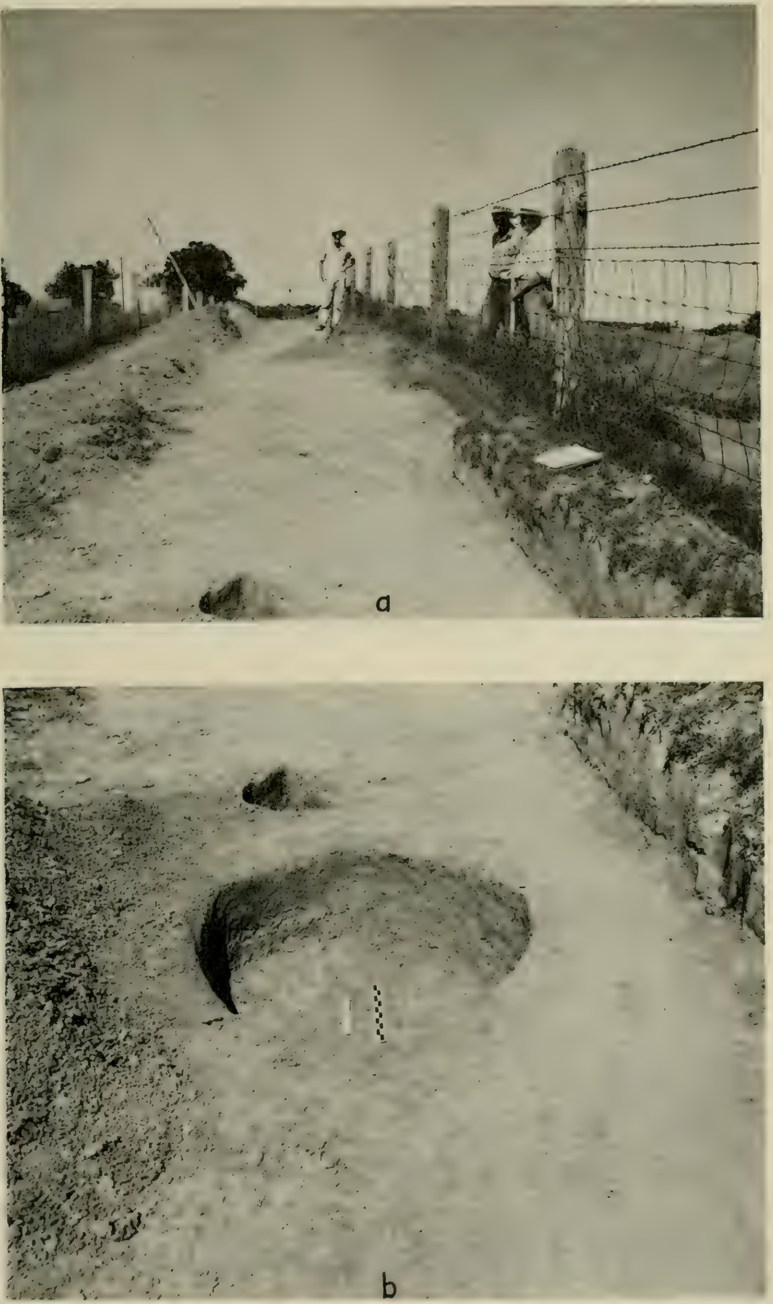
Vegetal specimens were restricted to the upper portion of the deposit only, hickory and butternut forming a majority of the sample. At the time of excavation varieties of both trees formed the important ground cover upon and adjacent to the site. Since the occupation area was heavily penetrated by burrowing animals, it seems probable that most, if not all, of the vegetal material is intrusive.



a, Completed section cut of mound, Site 13JH3. *b*, Mound 4, Site 13JH4; laminated structure apparent.



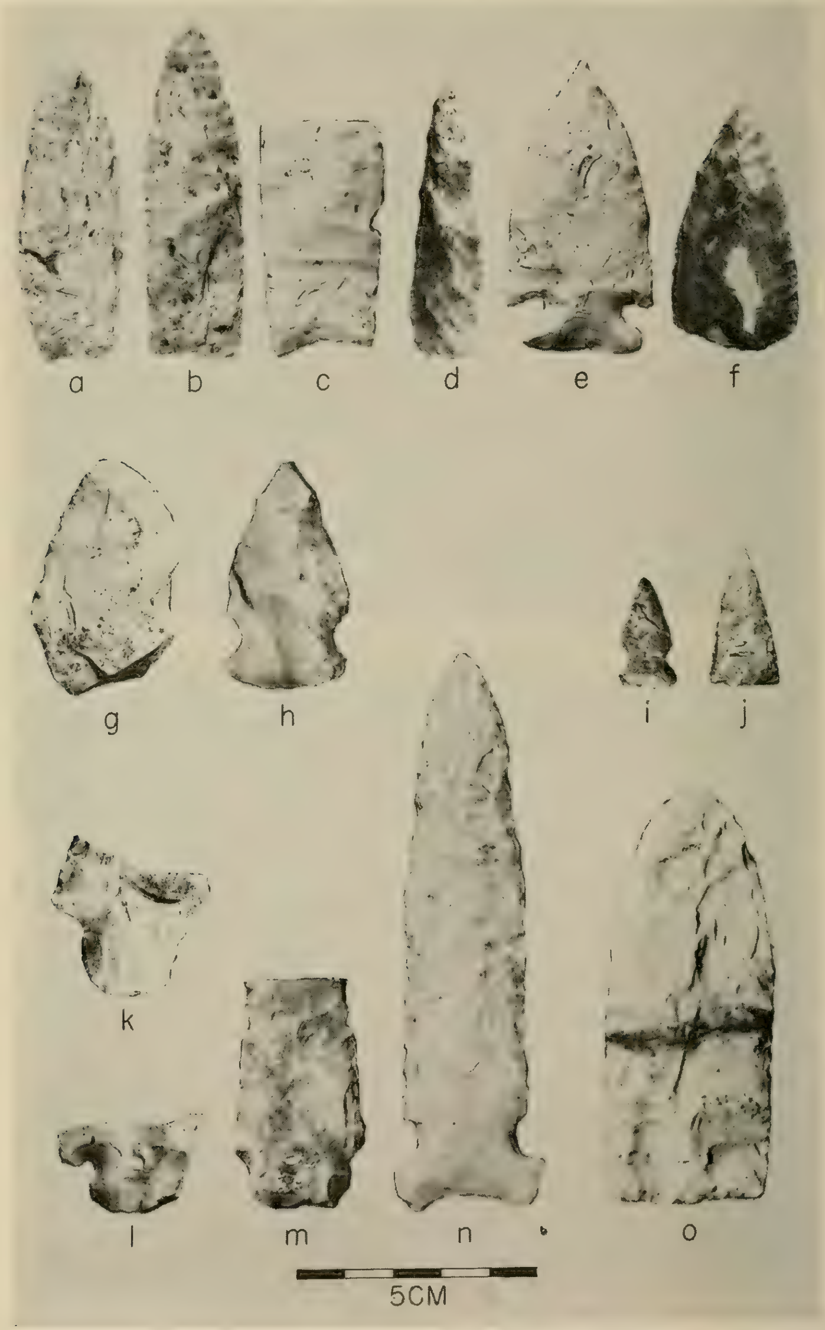
Site 13JH4. *a,* Mound 6, limestone slabs on loess surface. *b,* Mound 7, test trenches completed.



Harapat Lane Site (13JH201). *a*, Completed excavation of the "lane" area. *b*, Feature 2, shallow cache pit and adjacent posthole.

Woodpecker Cave (13JH202). *a,* Shelter overhang and occupation platform prior to excavation. *b,* Cave area before excavation.

Woodpecker Cave (13JH202). *a*, Occupation platform and cave in process of excavation. *b*, Interior (rear) of cave during excavation.


a
b
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d
e
f
g
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i
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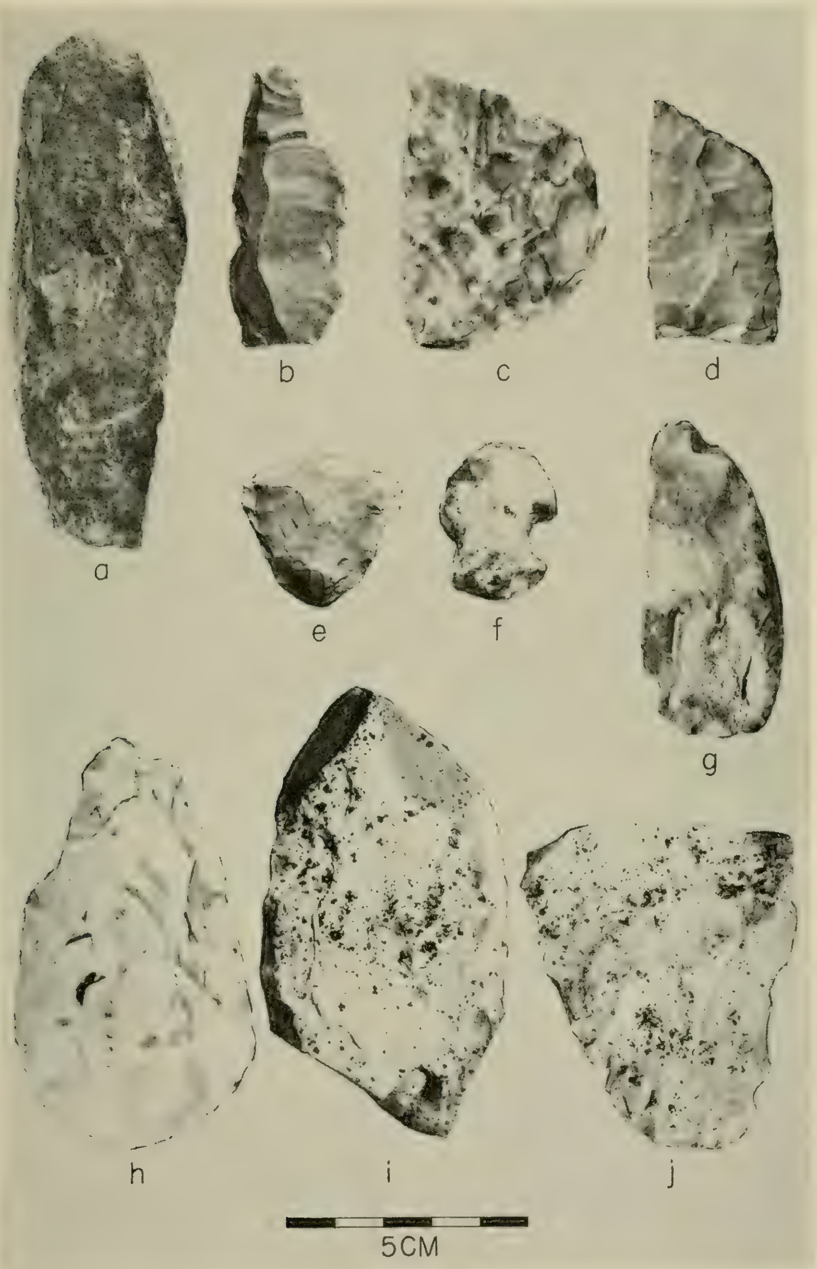
5CM

Projectile points and blades from Sites 13JH2, 13JH4, 13JH201, 13JH202, 13JH205, and 13JH206.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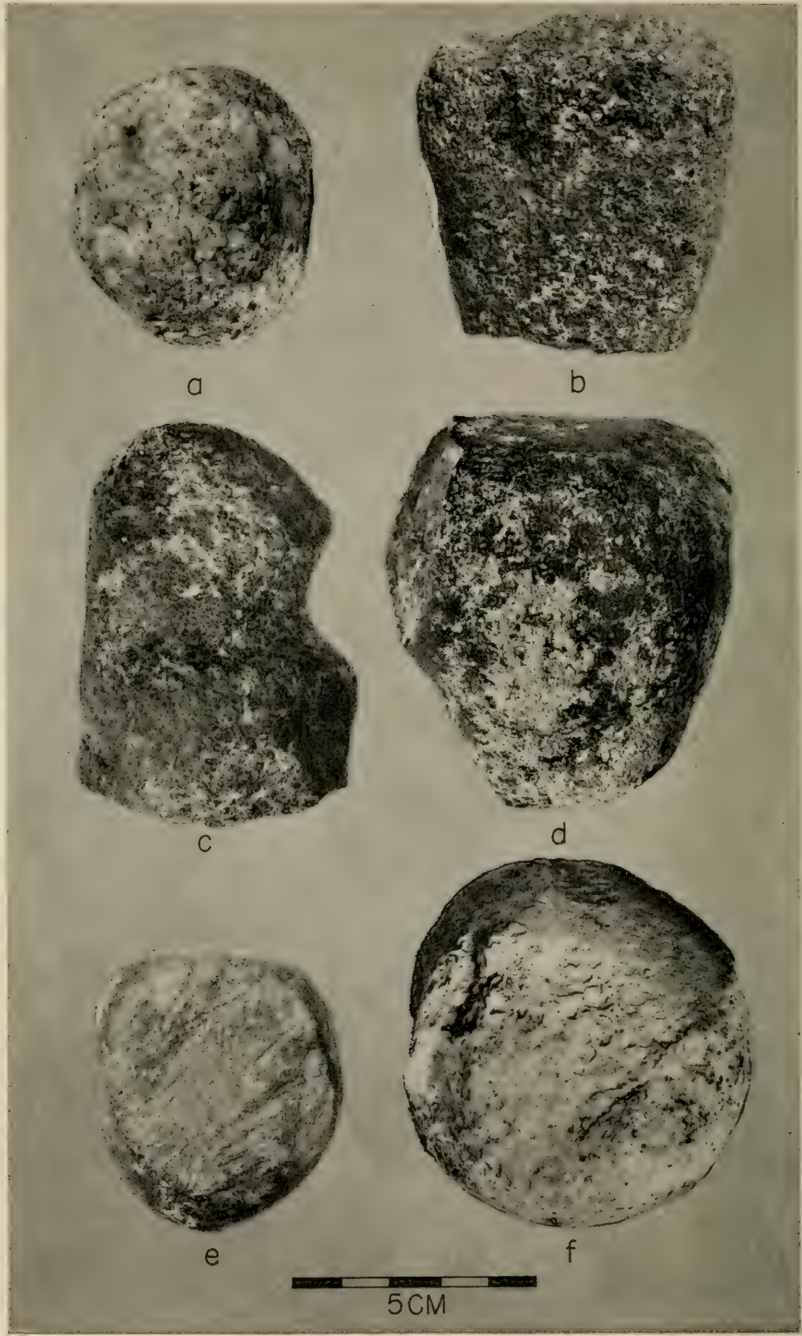
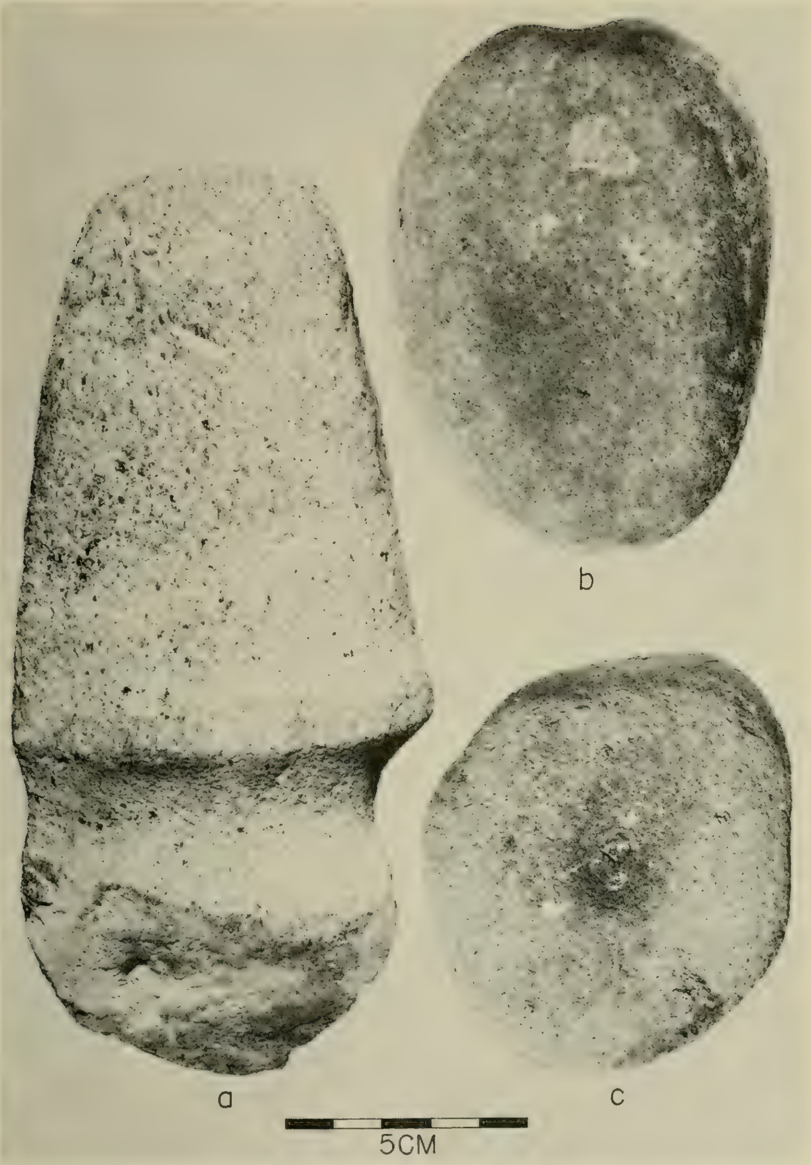
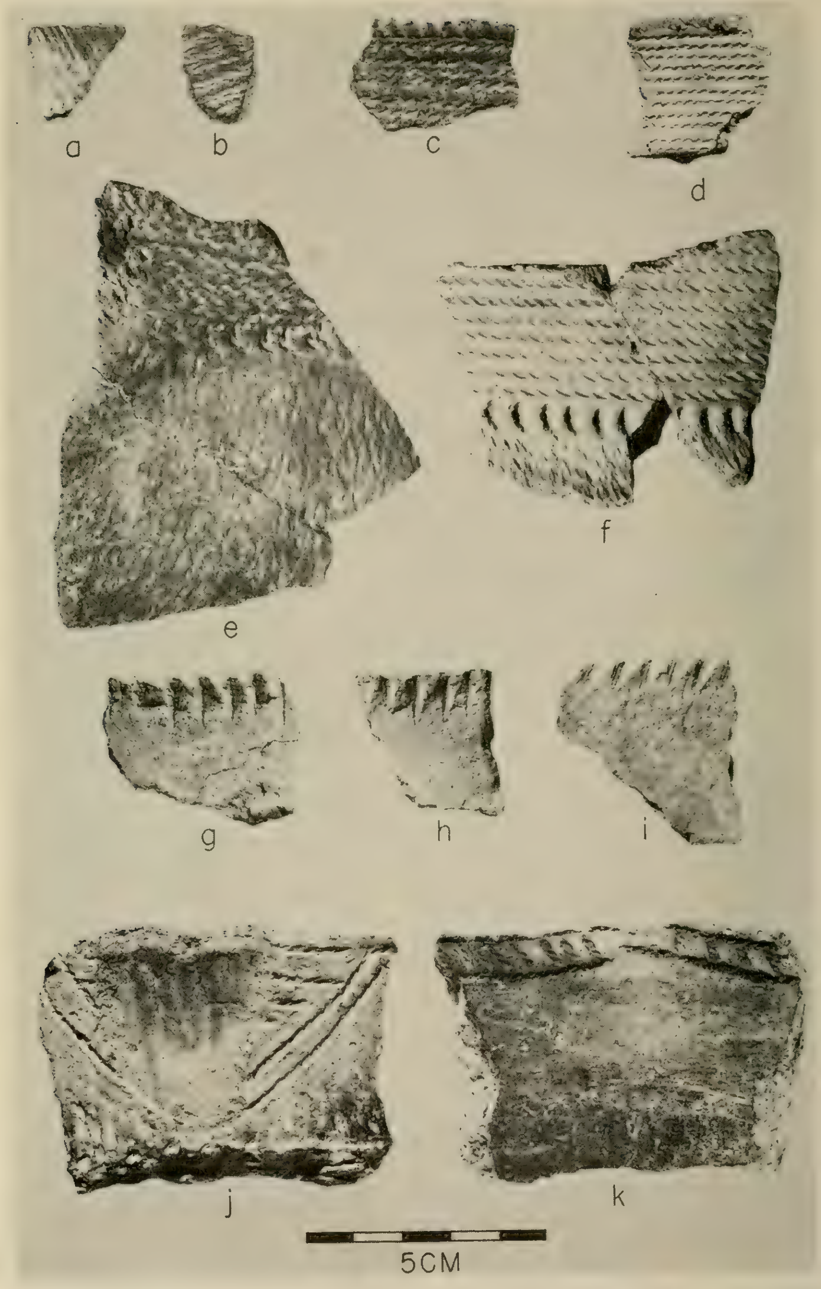
Knives, scrapers, and heavy blades from Sites 13JH2, 13JH201, 13JH202, 13JH205, and 13JH208.



Celts, hammer, and abrading stones from Sites 13JH2, 13JH201, 13JH202, and 13JH205.



Hammerstones and grooved ax from Sites 13JH202 and 13JH205.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i
j
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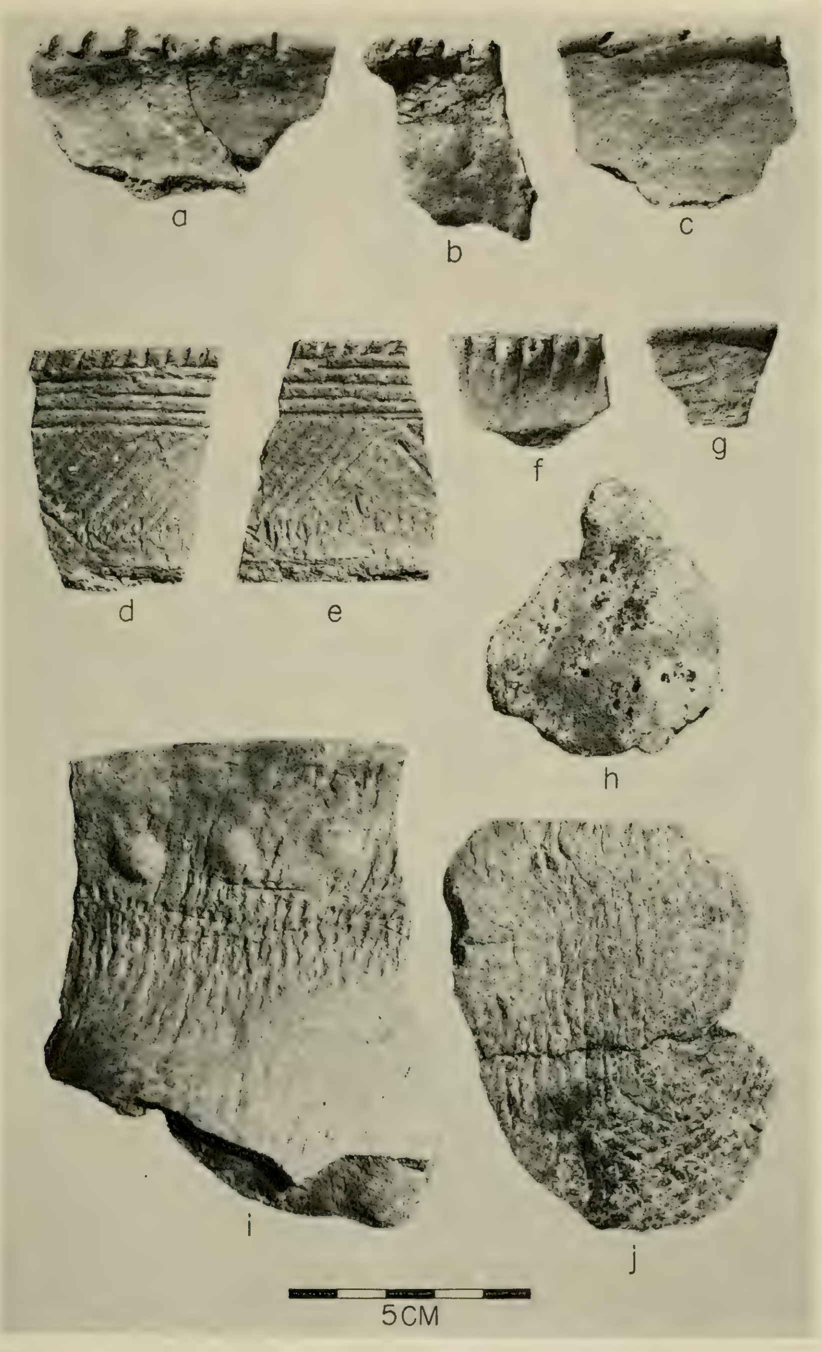
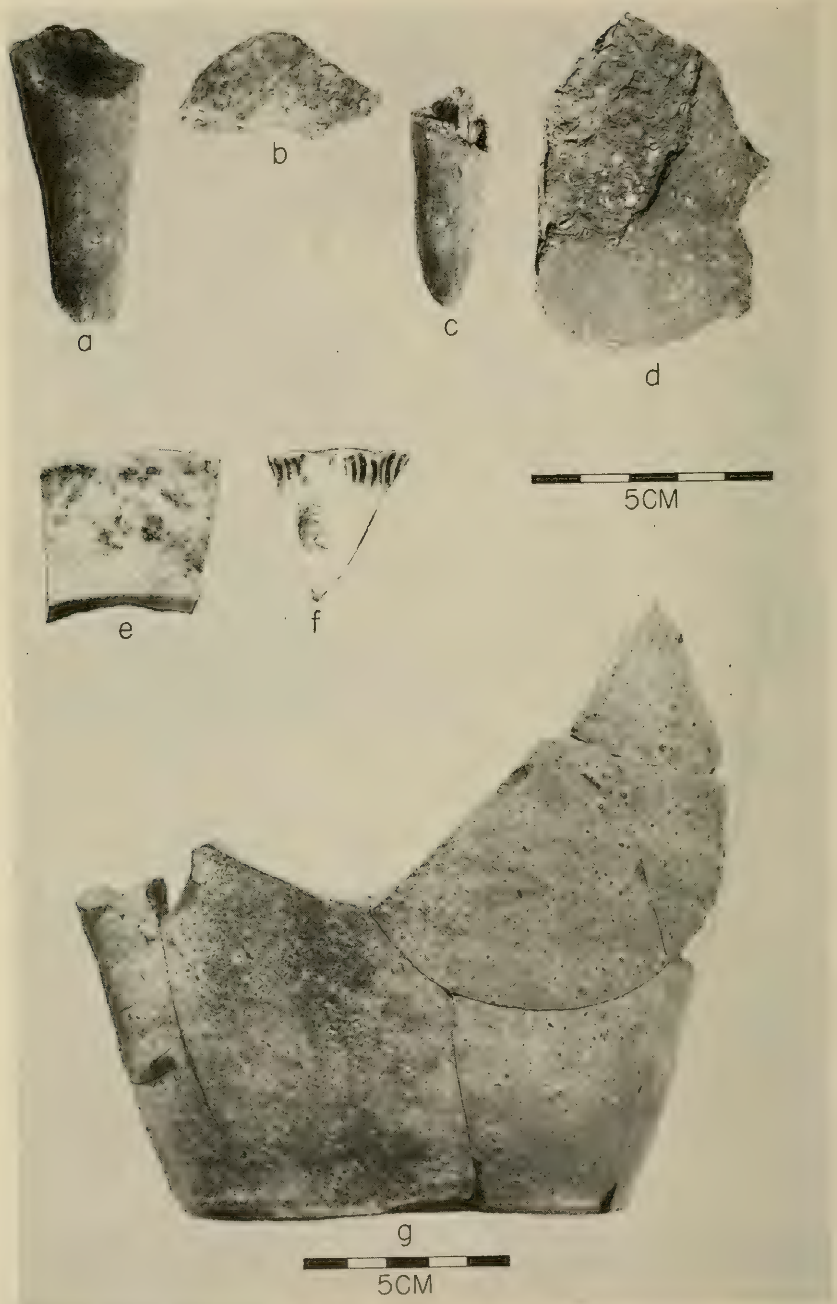
5CM

13 JH3: *a*, *b*. 13JH2—Group A: *c–f*, *j* (exterior), *k* (interior). Plain "Wares" (VB): *g–i*.



Miscellaneous Plain "Wares" (V): *a–c*, *f–h* (pendant). Group B (II): *i*, miscellaneous Cord-marked sherds (IIIC): *j*, from Site 13JH202.



Conical pipes: *a*, body; *b*, vertical view of bowl; *c*, body. Shell-tempered sherd: *d*, Whiteware: *e*, *f*, Stoneware jug. *g*, From Sites 13JH4, 13JH202, and 13JH205.

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River Basin Surveys Papers, No. 23

The McNary Reservoir: A Study in Plateau Archeology

By JOEL L. SHINER

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THE McNARY RESERVOIR, A STUDY IN PLATEAU ARCHEOLOGY[1]

By Joel L. Shiner

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Louis R. Caywood, National Park Service archeologist, Region 4, acted in the capacity of liaison between the National Park Service and River Basin Surveys. His friendly and cheerful cooperation in the

---

[1] The material in this report was used in a thesis submitted to the faculty of the Department of Anthropology in partial fulfillment of the requirements for the degree of doctor of philosophy in the Graduate College, University of Arizona. The manuscript was submitted to the River Basin Surveys in February 1955.

face of our constant demands on him for maps, transportation, and information, contributed greatly to the progress of the work.

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INTRODUCTION

Anthropological research in the Plateau Area of northwestern North America has failed to produce a clear picture of Indian culture. From both the ethnological and archeological viewpoint there have been insufficient research and little synthesis. While ethnographic investigation has permitted certain generalities about Plateau culture, archeological research has not produced any sort of chronology, not even a local sequence. Since Wissler's classification in 1922, which set up a culture area known as the Plateau, very little has been done toward filling in the details that were not available then.

A preponderance of the ethnographic research has been centered in specific geographical regions to the neglect of others. Much of the effort has been expended on detailed problems of almost purely academic interest, while basic problems of time, space, and process have largely been ignored. Archeological research in the Plateau has been limited to a few major excavations, and the time factor has not been considered. These excavations have turned up collections of artifacts but have given no reconstruction of the aboriginal culture. This complaint has been made many times and in many places, but, relatively speaking, the Plateau remains one of the least-known areas in North America. If the fact is considered that thousands of aboriginal habitation sites exist in the area and thousands of relatively unacculturated Indians still survive, it is no exaggeration to state that the Plateau is much in need of anthropological research.

An opportunity to reopen one phase of the anthropological study came with the availability of a significant body of archeological data. These data came from the Smithsonian Institution's River Basin Surveys program of salvage archeology, which began in the Pacific Northwest in 1947, and came to an end in 1952. The intensive program of survey and excavation led to the development of a local sequence in one region and additional information from several other regions within the Plateau. These data should permit generalization about the Plateau during the prehistoric period since time and space dimensions on parts of the material culture are beginning to be understood.

The phrases "Culture Area" and "Plateau Area" have been used again and again, but little has been done to clarify the concepts behind them. This study follows the classification made by Wissler in "The American Indian" and accepts the concepts agreed upon by Wissler and Kroeber. The idea and reasoning behind such a classification are relatively simple. They stem from what might be called an American revolt against the older methods of collecting. In the old days a museum would exhibit collections of bows, canoes, or arrowheads, e.g., and emphasize the type of artifact but tend to neglect its associations. The teachings of Franz Boas regarding the importance of context were heeded by his students. Ethnological collections began to be made according to areas, and associated artifacts were exhibited together.

Among those most responsible for the Culture Area concept was Clark Wissler (1922), and it was his classification that set up a Plateau Area in addition to a Northwest Coast Area and a Plains Area.

> At the onset we called attention to the need for classification in dealing with ethnological and archaeological material. No one has ever gone far without feeling the necessity for this, . . . In setting up the areas for culture we grouped tribes or communities according to more or less common traits. This is classification by similarities. It so happened that tribes having many traits in common tended to cluster, . . . the habitat of a cluster could be defined in geographical terms. Culture Area is a name for such a cluster of communities. [Wissler, 1922, p. 297.]

Wissler stressed environment in delineating culture areas and stated:

> Environment does not produce a culture but stabilizes it. Once adapted to an environment, a culture tends to hold fast, to spread in area of adaption rather than move to a new area. [Ibid., p. 372.]

In setting up culture areas, he could have divided North America into hundreds of areas, or only three or four; but he compromised on a reasonable and workable number.

> A perusal of the literature of our subject shows it to be customary to divide the two continents into fifteen regions or areas. If desired, most of these can be subdivided, but it will best serve our purpose to deal with a smaller number. Each area designated has natural features peculiar to it and the tribes living in one of these areas have many cultural traits in common. [Ibid., p. 220.]

In making these classifications, he agreed with Kroeber that a Culture Area should involve:

> Reasonably uniform culture and some degree of environmental uniformity. [Kroeber, 1939, p. 3.]

With so little to go on, it is remarkable that Wissler could designate the Plateau as a separate area. At the time the classification was made, few data were available. Kroeber did not wholly agree with Wissler as to the character of Plateau Culture, and designated the area as one of mixed influences (Kroeber, 1939, p. 55). He was impressed by an apparent strong influence from the Northwest Coast on the one hand, and from the Plains on the other. Since that time, however, people have generally considered that in spite of outside influences Plateau culture maintained a "personality" of its own.

Among the recent tendencies in American research is the inquiry into time depths in culture areas. Since data are available on time and space distribution of material culture in the area, it follows that an examination of prehistoric culture in the Plateau would be a reasonable study. Thus, the problem can be posed, "Was the Plateau in prehistoric times a Culture Area, or was it peripheral to another area or areas?" The approach to this problem can be stated briefly. It will be to develop the local sequence in the region in which River Basin Surveys concentrated its work and to expand the picture to the Plateau in general. It involves detailed reporting of the results of River Basin archeology and comparisons with available materials from other sources. From the local sequence and comparisons important conclusions can be drawn.

The procedure is to present a physiographic and ethnographic background for a general picture of the Plateau before going into details. A brief history of significant contributions to Plateau ethnography and archeology is followed by a summary of the part the River Basin Surveys played in its program of research. The discussion must then become specific before summing up and conclusions are reached. The thesis is that the Plateau in prehistoric times was more justifiably a separate culture area than it was in the early historical period with which Wissler was dealing.

Two of the McNary sites, the burial site 45–BN–3 and the pit house village 45–BN–53, were excavated and reported on by Douglas Osborne. The interpretation of these two sites was used by Osborne for his doctoral dissertation that also included a thorough study of the historic period. In view of Osborne's concern with the historic period in the McNary Reservoir, the present study touches lightly on that period. The material culture of the historic period is discussed only in the sense that it is a continuation of what went before.

In the following physical description of the Plateau no exact limits are placed on the area. Exact limits cannot be set because the physical area described is that which corresponds to the cultural Plateau, and the boundaries of Plateau culture were not sharp lines. The consideration of the Plateau Area in the present discussion is mainly directed to that portion which lies within the United States. Investigations, both archeological and ethnological, have been made in Canada, but nearly all of them were made either a long time ago or so recently that they have not yet been published. Thus, while it must be recognized that the Plateau Area extends far north of the Canadian-United States border, little can be done at the present time to describe and analyze the culture of that portion of the Plateau.

PHYSIOGRAPHY OF THE PLATEAU

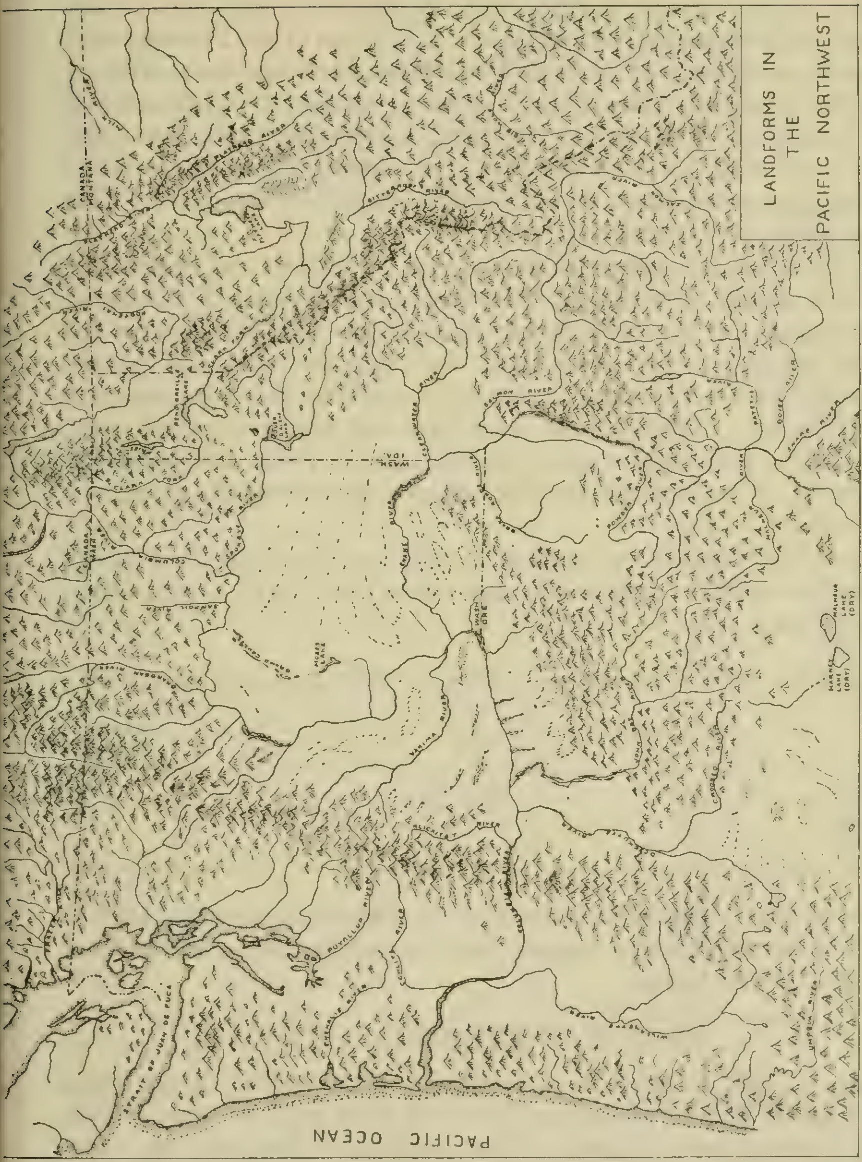
The Plateau is a large basin with mountain ranges on all sides (see map 1). It includes the eastern slopes of the Cascades from the Fraser River south to Crooked River. Eastward, it extends to the edge of the Plains Area which would be the Flathead River in the north and the continental divide in the south. The exact boundaries on the north have never been set. On the south, the Plateau merges into the Northern Great Basin.

Most of the Plateau is characterized by horizontal sheets of basaltic lava piled one on top of the other, the result of Miocene eruptions. Pleistocene and recent eruptions have been numerous, but have not materially changed the landforms. Erosion and deposition have gone on, cutting and filling, carving deep canyons and creating flat alluvial valleys. Still the thick layers of lava dominate the landscape.

The Columbia River, with its major tributary the Snake, is the most important feature in altering the landscape. Throughout the Plateau these two rivers have carved deep canyons along the main courses and side canyons where each tributary joins the main stream. The Columbia is an exotic stream in that it rises in a climate zone different from the Plateau, and carries a tremendous volume of water through a semidesert whose rainfall could never support more than intermittent streams. The Columbia and its tributaries made it possible for man to utilize an area which otherwise might have been comparable to the Great Basin in its aridity and barrenness.

The course of the Columbia River through the Cascades is in the form of a deep gorge with high mountains on both sides. At The Dalles, as one leaves the coastal strip and enters the Plateau, the country changes suddenly, and east of there the trees disappear. The lush vegetation of the gorge gives way to semidesert, and almost true desert conditions. As one proceeds upstream, he can see little change in several hundred miles. The river is entrenched in a basalt-cliff-lined canyon one hundred to one thousand feet below the rolling and broken uplands. Here and there, some miles away from the river, the hills rise to a height capable of intercepting moisture from the Pacific Ocean winds, and thus supporting some vegetation. Otherwise, the canyon and its flanks are barren except for those trees and gardens recently planted by white men. Life is possible in this interior basin only where water is available, and that is limited to those major streams that rise in the mountains that surround the basin.

Not until the river traveler reached the Okanogan highlands on his way upstream, would he notice much change. Here the river leaves the basalt cliffs and winds through rounded hills that feature bunchgrass and pine in a typical park landscape. Farther to the north the vegetation increases gradually to become more forestlike.


LANDFORMS IN THE PACIFIC NORTHWEST
PACIFIC OCEAN
CANADA MONTANA
CANADA WASH
WASH IDA
WASH ORE
CLEARWATER RIVER
SNAKE RIVER
SALMON RIVER
BOISE RIVER
PAYETTE RIVER
SNAKE RIVER
YAKIMA RIVER
KLICKITAT RIVER
COWLITZ RIVER
PUYALLUP RIVER
CHEHALIS RIVER
STRAIT OF JUAN DE FUCA
UMPQUA RIVER
MALHEUR LAKE (DRY)
HARNEY LAKE (DRY)
MOSES LAKE
PEND OREILLE LAKE
CROOKED RIVER
JOHN DAY RIVER
DESCHUTES RIVER
BITTERROOT RIVER
CLARK FORK
GRANDE RONDE RIVER

Map 1.—Landforms in the Pacific Northwest.

Much of the land away from the Columbia River and in the basin is arid, windswept, and supports little more than cactus and sagebrush. Major tributaries include the Deschutes, just east of The Dalles, the Yakima nearly opposite the mouth of the Snake, and a number of small streams in the northeast. A division of the Plateau could be made on the basis of aridity. The southern and western portion of the area, except for the mountains, is hot in summer, dry, treeless, and basalt covered. The northeastern part, on the other hand, is forested and dotted with lakes. Malouf has considered designating the latter region a separate culture area (personal communication, 1953). This point is discussed later.

In the hills and mountains that are on all sides of the Plateau the size and number of trees are proportional to the elevation. The lower eastern slopes of the Cascades are more or less in a rain shadow but benefit somewhat from the runoff. On the other hand, the western slopes of the eastern ranges receive sufficient direct rainfall to support heavy forests. The most common trees are jack pine, pitch pine, Douglas fir, and maple in the higher elevations. Cedar and oak dominate much of the forest edges, which quickly give way to the ubiquitous sagebrush.

Mean Fahrenheit temperatures for different parts of the Plateau, as well as annual precipitation, are taken from Ray's charts (Ray, 1936, p. 105).

TABLE 1.—*Temperature and precipitation for different parts of the Plateau*

Location	July mean (°F.)	January mean (°F.)	Rainfall (inches)
Kalispel	68	23	18
Sanpoil	66	22	12
Wenatchi	71	25	9
Umatilla	75	33	7.5

Absolute maximums are not listed but temperatures exceeding 110° F. are not uncommon and temperatures as low as minus 20° are not unusual in the winter.

PLATEAU ETHNOGRAPHY

Map 2 gives the location and territory of the major Plateau tribes as of about 1825 to 1850, based on work done by Berreman (1937), Ray (1936), and Osborne.[2] The boundaries may not be exact for many reasons; hunting territories are seldom precise, especially if hunting is not the major economic pursuit. There is also considerable evidence of movement in the period between 1800 and 1850 (Teit,

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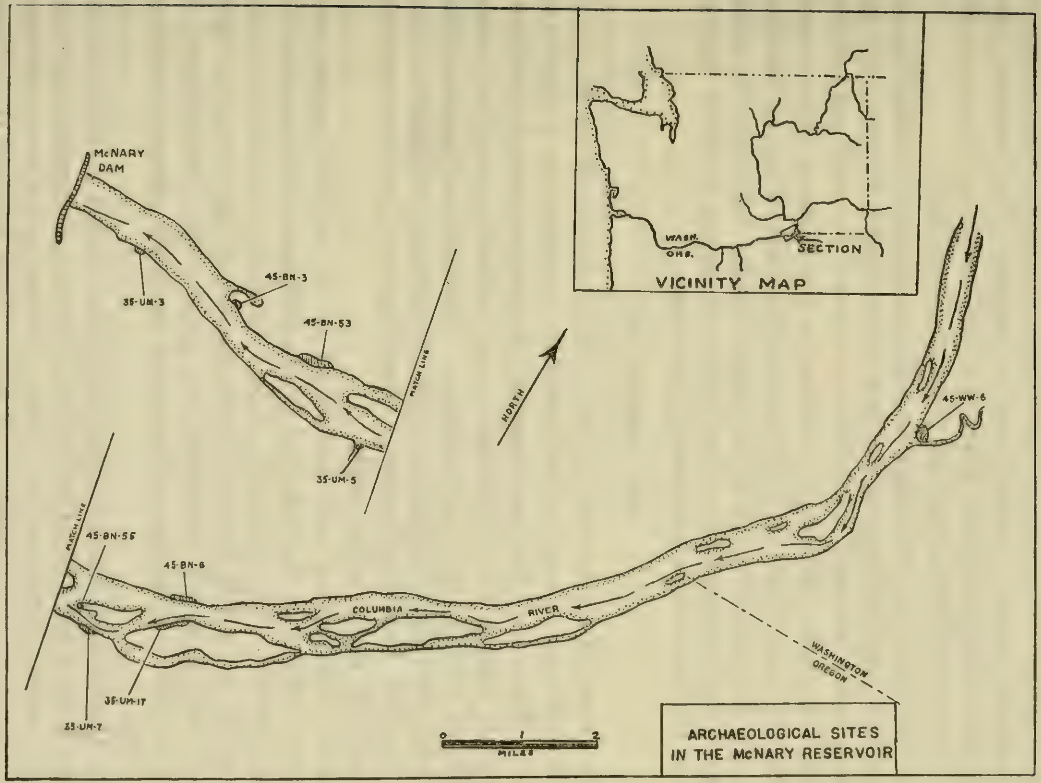
[7] See footnote 3, p. 164.


VICINITY MAP
WASH.
ORE.
SECTION
McNARY
DAM
35-UM-3
45-BN-3
45-BN-53
MATCH LINE
35-UM-5
NORTH
45-WW-6
MATCH LINE
45-BN-55
45-BN-6
COLUMBIA
RIVER
35-UM-17
35-UM-7
WASHINGTON
OREGON
0
1
2
MILES
ARCHAEOLOGICAL SITES
IN THE McNARY RESERVOIR

Map 2.—Archeological sites in the McNary region.

1928). Osborne's plan was to place ethnic boundaries, wherever possible, on the nearest topographic feature, stream, or ridge, to the land indicated by native informants.

Three linguistic stocks are represented in the Plateau. The Sahaptins are in the central portion along the Columbia River and lower Snake River. The Interior Salish are in the northern half of the area, all the way to the Canadian border. The Northern Shoshoneans occupy the Snake River south of Lewiston, Idaho, as well as the mountains that fringe the northern Great Basin.

In order to gain an understanding of aboriginal life in the Plateau, it would be worthwhile to review one or two typical Plateau cultures. Ethnographic material is available on several Sahaptin and Salish tribes, but almost nothing is written on the Plateau Shoshoneans. The Umatilla are more or less typical of the Sahaptins, and the Sanpoil are representative of the Interior Salish. Since the Umatilla occupied the lower portion of the McNary Reservoir in 1800 a description of their culture is particularly pertinent.

THE UMATILLA[3]

The Umatilla occupied both sides of the Columbia River from just east of Arlington, Oreg., to just west of the mouth of the Walla Walla River. From what has been learned in limited contacts, it is believed that their nearest kin, linguistically and culturally, were the Tenino who lived on their western boundary. Their political ties were few, but very friendly relations and a war alliance existed between them and the Nez Percé to the east. Their "natural" enemies were the Paiute in the desert to the south.

Tribal organization and centralization of political power were undeveloped before the influx of Plains influence, which apparently began between 1750 and 1800. Local autonomy was more or less typical of the whole Plateau before the era of the horse and gun. Local chiefs formerly inherited their position but later achieved it by their deeds. Concepts of ceremony probably changed at about this time.

The Umatilla shaman received his power from a guardian spirit, and both sexes could practice the art. Laymen also sought guardian spirits, usually just prior to puberty. Puberty rites were restricted to the first menarche isolation of girls. They believed that illness could be caused by intrusions, both spirit and material, or by loss of the soul. The corpse was prepared for burial by being washed and dressed, but it was never buried in the village.

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[3] Most of this material is taken from H. D. Osborne's "Excavations near Umatilla, Oregon; The archeology of the Columbia Intermontane Province." Unpublished Ph. D. dissertation, 1951. (Published in slightly revised form as Bulletin 166 of the Bureau of American Ethnology. See Osborne, 1957.)

War was important, at least after the horse and gun became common. With it was a complex of raids, coups, scalps, and slaves. The bow and arrow which were used in warfare were the principal hunting weapons. Deer, elk, rabbits, antelope, and probably bison were hunted, and both the drive and stalking techniques were used.

The Columbia was one of the main food sources. Chinook salmon were said to be the most important fish and they were taken by spear, nets, traps, and weirs. From the river came also numbers of shellfish. Surely as important as fishing in the economy was the gathering of camas and kouse (tuberous roots), berries, pine nuts, as well as seeds, bark, and sap. Cooking was done by roasting food in an earth oven or by boiling it.

The Umatilla are said to have had dugout canoes and rafts. Their houses were normally multifamily dwellings 60 feet long and 16 feet wide. These were constructed of poles and mats over a shallow excavation. Conical semisubterranean lodges were also used, as well as sweat lodges and drying racks for fish.

Other traits listed include armor, drums, flutes, whistles, pipes, outdoor sports, and a first salmon ceremony.

THE SANPOIL[4]

The people of this group shared a language and culture but were not a political unit. The 1,200 to 1,300 Sanpoil lived in autonomous villages along the Columbia in northeastern Washington. Their territory of some 16,000 square miles included about 85 miles of the Columbia as well as the Sanpoil River drainage. Much of their river frontage that included all their villages is now under the pool of Grand Coulee Dam.

Theirs was a classless, democratic society with no slaves. All married men could vote and claim citizenship. Anyone was eligible for chieftainship, a position of advisory powers only. Since the village was the political unit there was no real tribal organization. There was no unity in war, for the Sanpoil did not make war. Pacifism was stressed to the point that even enemy raids were not retaliated.

The permanent habitations were along the Columbia River, which in this area is still a desert. Just north of the river there were forested hills, but they were used only for hunting. It was the river that provided food, firewood (driftwood), water, and transportation. Shellfish also were used, as well as plants that grew along the banks of the river.

Fishing began in May and lasted until about the end of November. The most important species was the Chinook salmon but others were readily taken and dried. Several methods of fishing were employed;

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[4] Material taken from Ray (1932).

the large traps were probably the most important. Seines, dip nets, and spears saw considerable use, particularly in conjunction with canoe fishing. Large quantities of fish were dried on racks and stored for use during the winter.

In the winter, hunting was the only practical economic pursuit, but it too was carried on throughout the rest of the year. Hunting parties sought to drive the game, which was killed with the bow and arrow. Deer were hunted for the most part, but antelope, elk, bear, and rabbits were important food animals.

The spring and summer months were important ones for gathering, and large quantities of many kinds of plants were collected. Camas was particularly favored, with bitterroot, serviceberry, chokeberry, and sunflower seeds filling in. Prickly pears and pine nuts were gathered in season. The implements used were digging sticks, baskets, and carrying bags. During the winter when fishing and gathering were impractical much time was spent in weaving baskets and manufacturing tools.

Most of the houses were of two types: the summer mat house, which was shallow and open to ventilation, and the winter lodge, which was semisubterranean and more solidly built. Summer clothing was rather scanty. The men wore a breechclout and little else, not even sandals. The women usually wore a woven poncho or often only a breechclout. Winter apparel included the addition of fur robes, moccasins, fur leggings, and blankets. Snowshoes were known and used. Both men and women painted their faces and braided their hair on occasion.

A number of taboos were observed by the parents before a child was born. Soon after birth the child was placed on a cradleboard and seldom removed until he began to walk. The usual isolation ceremony was observed by girls at puberty, while the boys performed exercises such as swimming and running without any real ceremony. After death the body was immediately removed from the house and was buried as soon as possible. A talus slope was usually chosen for burial. Guardian spirits were sought by all young boys and by some of the girls. They were sent out at night at an early age in order to meet their spirit. Both men and women could become shamans. They were well paid for curing but had to perform certain public duties such as conducting funerals.

The Sanpoil had pipes, dice, the sweat lodge, and wooden mortars. The usual household might contain 10 to 20 persons.

ETHNOGRAPHIC RESEARCH

Two studies by Verne F. Ray (1936 and 1939) give the most comprehensive treatment of tribal distribution in the Plateau. These are "Native Villages and Groupings of the Columbia Basin," and

"Cultural Relations in the Plateau of Northwestern America." Ray is quick to point out that the word "tribe" does not apply to the Plateau until sometime after 1750 or 1800 because of the widespread local autonomy. The boundaries shown on map 2 thus are more dialectical than political. Although there are hints of movement and perhaps migration in the Plateau just prior to 1800 they have not been worked out (Teit, 1928, p. 98).

The groupings shown in map 2 are concerned with two languages, Sahaptin and Interior Salish. The following are Sahaptin groups: Tenino, Klickitat, Umatilla, Cayuse, Nez Percé, Yakima, Wallula, Wanapam, Kittitas, and Palus. The Interior Salish include: Wenatchee, Columbia, Chelan, Methow, Okanogan, Nespelem and Sanpoil, Spokane, Coeur D'Alene, Colville, Lakes, and Kalispel.

At the present time there are not sufficient data to show significant differences between one group and the next or between Sahaptin and Salish. A few generalities can be made, however. The Sahaptins apparently received influence from the Plains Area earlier and were perhaps more receptive to it. The Umatilla were close allies to the Nez Percé who in turn were in touch with such Plains tribes as the Blackfoot. Through such contacts the Sahaptins learned of horses, guns, tribal organization, war honors, and other typical traits of the Plains Area. The Salish, without such direct contact, remained what might be termed conservative. They were slower and more selective in their borrowing. There are probably many other differences. There is reason to believe that the Salish were better boatmen, there being more water in the northeastern Plateau. Such things as Bear worship, exposure of the dead, grooved mauls, and "potato masher" pestles seem to be confined to the Salish tribes, just as head deformation, funerary houses, stone fishing weights, and stone fetishes seem to be more southerly centered. All of these traits could be studied fruitfully. The distribution charts (see figures 31 to 40) cover only a few sites, for only a few site reports have been published in the Plateau.

Scientific research in the Plateau began with the Lewis and Clark expedition of 1800 to 1806 (Thwaites, 1904–5, vol. 3). Their journals are full of ethnographic observations and factual reporting that showed these explorers to be far ahead of their time. Lewis and Clark saw only the southern part of the Plateau but recorded a most valuable account of what they witnessed.

Robert Stuart kept a diary of his travels but was not given to recording many details. He may have been a keen observer but left little in writing to preserve what he saw in 1812. A full account on almost all parts of the Plateau as of 1832 can be found in Parker's travelog (Parker, 1845). Despite the fact that he saw the Indians through the eyes of a missionary intent on conversion, he gave excellent descriptions of clothing, houses, ornaments, economy, and social practices.

The journals of Alexander Ross cover a period between 1818 and 1828 (Ross, 1849). Certain parts of his material are valuable but they cover only a limited area.

There are many other traveler's accounts that can yield specific information but none to compare with Lewis and Clak (Thwaites, 1904–5) or Parker (1845).

It was not until the turn of the century that work in the Plateau was begun by trained anthropologists. The main contributions in archeology were by Harlan I. Smith (1899) in Southern British Columbia and the Yakima Valley (Smith, 1910); Herbert Krieger (1927 and 1928) in the middle Columbia River; Strong, Schenck and Steward (1930) at The Dalles; and Collier, Hudson, and Ford (1942) on the upper Columbia River. Cressman (1950) did some work in the Plateau, but the majority of his research has been in the Northern Great Basin. The work of each of these men will be used for comparative material.

Ethnological research in the Plateau has been carried on to a slightly greater extent. The earliest investigations were ethnographic and dealt with a single group. Later work was of a comparative nature and in some cases made contributions to anthropological theory as well as fact.

The first major ethnographic report published on the Plateau was by James Teit (1900) and consisted of a study of the Interior Salish. It was followed shortly by Spinden's (1908) excellent monograph on the Nez Percé. Leslie Spier and Edward Sapir (1930) studied the Wishram near The Dalles about the same time that Verne Ray (1932) was working among the Sanpoil and Nespelem in northeastern Washington. Linguistic studies have been made by Melville Jacobs (1931) for the Sahaptins, Sapir (1909) for the Wishram, and Gladys Reichard (1938, 1945) for the Interior Salish.

Minor contributions have been made by a number of authors. There is no intention of slighting the works of the many contributors to Plateau ethnography and archeology, but special mention can be made of only those whose research has had fairly broad coverage of the area, or is pertinent to this study. Joel Berreman (1937) published a study on the distribution of tribes in Oregon, and Walter Cline (1938) published a study of the Southern Okanogan.

The most active ethnologist in the Plateau has been Ray. His work and major publications have been listed earlier but it is worth mentioning that he has contributed much to the ethnographic understanding of the Plateau Area. His "Cultural Relations in the Plateau . . ." is the only work of its kind on the area.

THE RIVER BASIN SURVEYS PROGRAM

About the time that it was clear that World War II would come to a successful conclusion, plans were made by the Federal Government for a nationwide program of flood control and irrigation. The realization that these plans would be carried out caused some concern among historians, archeologists, and paleontologists, in that the work would inundate vast areas in which little or no scientific investigation had been undertaken.

In 1945, one of the first steps was taken to remedy the situation. Members of the Committee on Basic Needs in American Archeology, of the National Research Council, and members of the Smithsonian Institution staff met and discussed plans for initiating a program of salvage. First, a Committee for the Recovery of Archeological Remains was formed to study the problem. Later, agreements were reached between the Smithsonian Institution, the National Park Service, the Corps of Engineers, and the Bureau of Reclamation for a salvage program.

The National Park Service is the agency officially responsible for the preservation of historical and archeological sites; it therefore became the responsible agency in the salvage program. In October 1945, an agreement was reached between the Park Service and the Smithsonian Institution, whereby the latter would undertake scientific responsibility for the work done. The Park Service would, under the agreement, advise the Smithsonian Institution of Federal projects which might involve salvage, and in turn advise the agency responsible for the construction that archeological and/or paleontological sites were threatened if such were the case.

River Basin Surveys was actually organized in the fall of 1945, with Dr. Frank H. H. Roberts, Jr., as director. It was set up as a unit of the Bureau of American Ethnology. In 1946 the Missouri River Basin established the first field office at Lincoln, Nebr. In 1947 field headquarters were opened at Eugene, Oreg., for the Pacific Coast region, and Dr. Philip Drucker was appointed director.

Initial archeological surveys were begun in the Pacific Coast region during the summer of 1947. One of the first surveys accomplished was that of the McNary Reservoir on the Columbia River (see map 2). Clarence Smith and Franklin Fenenga did the fieldwork and reported 120 archeological sites within the pool area. They recommended that 22 or more of these should be given priority for excavation. Numbers of reservoirs were surveyed in subsequent years, and reports on the results were mimeographed for distribution to cooperating agencies and institutions.

During the summer of 1948, excavations were initiated at three sites. At site 45–BN–3 (Berrian's Island), a burial ground was almost completely excavated; at site 45–BN–53, a pit house village was partially excavated; and at site 35–UM–8, an early occupation site was tested. In 1949, site 35–UM–8 received additional testing, and at site 35–UM–7 (Cold Springs), a pit house and midden area were partially excavated. In 1950, two pit house villages were partially excavated. These were 45–BN–6 and 35–UM–17 (Techumtas Island). In 1951 an early site 35–UM–5 (Hat Creek) and a late site 45–WW–6 (Wallula) were each partially excavated. In 1952 further testing was done at sites 35–UM–7 and 35–UM–8. Sites 35–UM–3, 35–UM–10, and 45–BN–55 were scenes of minor excavations.

After each summer in the field, the excavated materials and data were taken to the laboratory in Eugene for study. As soon as possible, reports were written on the results of each excavation. These reports were little more than a factual account of the material recovered with an attempt to relate it to other cultures in time and space. Because of their limited distribution, illustrations were kept at a minimum.

Techniques in the field were kept as flexible as possible and only a few were standardized. One of these was the grid system. A site was staked with sections of reinforcing iron with wooden caps which could be lettered. A single row of stakes 10 feet apart were set across a site in a north-south direction and numbered consecutively from south to north. Facing north for directions right and left, rows of stakes parallel to the first row were given the additional designation R or L. The first stake to the right of stake 1 would be 1–R–1. The second stake to the left of stake 3 would be 3–L–2, and so forth. Since engineering surveying equipment was provided, and it was calibrated in feet and tenths of feet, these units were used in the field.

Artifact locations were recorded in three dimensions, with horizontal measurements taken from the nearest stake. Vertical measurements were taken from both the surface of the ground and by alidade. Animal bones and other specimens were normally recorded by arbitrary levels within a grid square.

Sites were mapped and contoured with excavations, houses, and other features shown. It was not deemed necessary to relate each map to sea level but only to a single benchmark arbitrarily chosen within the site. Each house was excavated as a unit, and was controlled by an interior grid system of 5-foot squares. Normally, a house was trenched from north to south to determine what condition the floor or floors were in. Further excavation could be made by parallel trenches or by quartering. A few houses were excavated by horizontal plane sections 1 foot apart so as to distinguish the floor from the fill. It was not feasible to follow floors, for they were far too thin and nebulous. It proved to be easier to find them in profile by the changes in soil color.

It was seldom possible to do more than sample a site. Funds were limited, and there were dozens of sites to excavate before the water began to rise behind the McNary Dam. Thus, four or five houses were usually excavated in a village of several hundred dwellings, and three or four tests were made in the midden. The only site that was extensively excavated was 45–BN–3, a burial site with a remarkable array of material culture.

EXCAVATIONS IN THE McNARY RESERVOIR

During the extensive surveys and excavations in the McNary Reservoir, River Basin Surveys found no evidence of the well-known "Early Man" tools such as have been related to Folsom, Yuma, and other cultures. No fossils or remains of extinct animals were recognized in association with cultural material.

The earliest cultural evidence comes from two sites, 35–UM–5 (Hat Creek) and 35–UM–3. The former, which is situated on the east bank of Hat Creek near the Columbia, was extensively excavated. Site 35–UM–3 was only tested in several areas. In order to determine the relative age of the culture represented at the Hat Creek site, the geological stratigraphy must be considered. At both 35–UM–5 and 35–UM–3 all of the cultural materials were found beneath a thick (1 to 2 feet) mantle of pure volcanic ash. The continuous layer of ash was unbroken except for small rodent holes, and formed an effective isolating mantle for the cultural material beneath it (pl. 30, *b*).

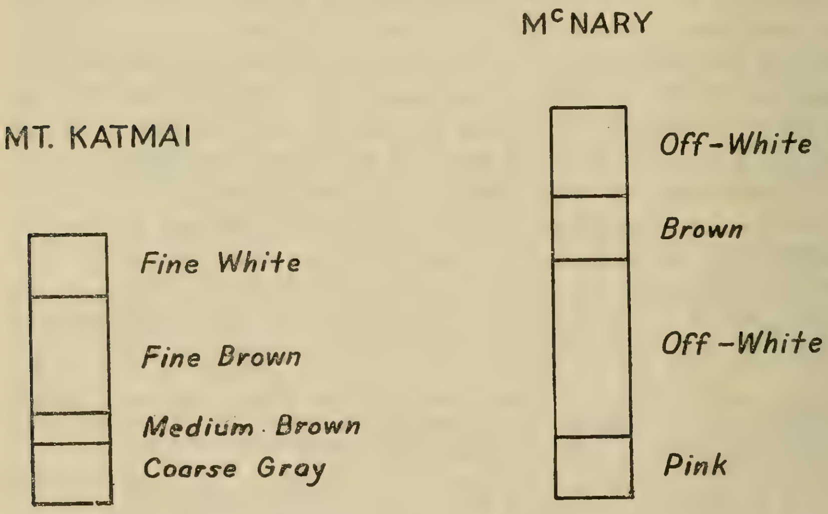
Disappointingly little is known of the origin of the volcanic ash. Efforts to tie it definitely to a specific volcano have not succeeded, mainly because there are too many of them. Williams notes:

> Too much space would be occupied by listing the signs of postglacial volcanic activity elsewhere along the crest of the Cascades, for there are youthful flows and cinder cones by the score. [Williams, 1948, p. 51.]

For an idea of what takes place in volcanic eruptions of this sort, consider the example of Mount Katmai in Alaska which erupted violently in 1912 (Martin, 1913). This was one of the most dramatic explosions known to history and occurred in three stages, one on the sixth of June and two on the seventh. The result of the explosions was something like that which took place when Mount Mazama (Crater Lake) blew apart. Several cubic miles of rock were pulverized to finely divided dust and were blown high into the air. At the town of Kodiak, 100 miles from the mountain, darkness lasted 60 hours. Fifteen miles from the volcano the ash was 5 feet deep, 118 miles away it was 3½ inches deep, and some of it drifted 900 miles to the east.

On the island of Kodiak, 50 to 100 miles east of Katmai, brush and trees were buried, but a high percentage came up through the ash and survived. Marine life apparently suffered more than did the land dwellers, for fish and shellfish died in great numbers. A few birds and animals died on Kodiak. Islanders themselves took refuge in houses, but there were many cases of sore throats and eyes. Two or three men died from the effects. For several years there was a shortage of game fish, but conditions eventually returned to normal.

The story of the eruption of Mount Katmai has interesting parallels with what must have taken place in the McNary region. At least two villages or camping spots were buried under 1 to 1½ feet of ash. The pattern of the ash deposit itself is remarkably similar to that at various places east of Mount Katmai. Martin (1913) illustrated a chart indicating the depth and composition of the Katmai ash at several stations east of the mountain. The column at Middle Bay, Alaska, 101 miles east of Mount Katmai was 11½ inches high, and the cross section is diagrammed below. The McNary ash was 17½ inches high, and the pattern is depicted below.



The McNary pattern suggests that either the ash there was closer to the source of its eruption than 101 miles or that the eruption that deposited it was of greater intensity or duration. The writer is inclined to believe that there were two major explosions in the same volcano, and that they were a matter of a few days or perhaps a week apart. For example, there is a repetitive pattern in the McNary ash: dark-light, dark-light; furthermore, between the lower white layer and the brown layer, there is a slight admixture of sand indicating perhaps some wind deposition between ash falls.

Other than a physical description, little can be said of the McNary pumicite. Its existence is ignored by the geological literature, and inquiries made at departments of geology at northwestern universities yielded no information. In 1951, Dr. Harold Culver, of the Department of Geology at the State College of Washington, examined the deposits at Hat Creek and other exposures in the vicinity. He concurred in the opinion that all of the exposures were homologous, and that the source lay in the Cascade Mountains about 100 miles to the west. The volcanic source could not have been much closer than 100 miles, for the ash itself is composed entirely of minute particles. Were the source closer, the ash would have contained larger particles including pumice. The fact that the ash was airborne over a considerable distance was verified by Dr. Culver.

Dr. Culver found no basis on which the precise time of the ash fall could be determined. He postulated a postglacial age and late rather than early postglacial. Examination of the ash itself was made by Dr. C. D. Campbell, also of the State College of Washington. He described the material as very fine volcanic dust with an index refraction of 1.53, indicating andesitic rather than rhyolitic affinities. Part of the material proved to be 90 percent glass with no incipient crystallization. Another part of the column showed 50 percent crystalline material, in part plagioclase feldspar.

Estimates, all admittedly guesses, would place the time of the ash deposition at between 2,000 and 5,000 years ago. Without going into detail, it is the writer's opinion that it would be difficult, indeed, from a cultural perspective, to account for as much as 5,000 years since the eruption. On the other hand, the changes in material culture and depth of deposit seem to require no small amount of time. It is dangerous perhaps to speculate with so little evidence, but the cultural data would tend to support a figure closer to 2,000 rather than 5,000.

Recognition of the layer of volcanic dust as a single event permits the relative placement of several of the McNary sites in time. Sites 35–UM–3 and 35–UM–5 (Hat Creek) are stratigraphically earlier than the deposition; sites 35–UM–7 (Cold Springs), 35–UM–8, and 45–BN–6 are later, since the ash stratum underlies the occupational remains.

35–UM–5 (HAT CREEK)

On the south bank of the Columbia about 6 miles east of McNary Dam, Hat Creek empties into the river. The creek is named for Hat Rock, a tall erosional remnant of columnar basalt that looks like an old beaver hat. This landmark was seen by Lewis and Clark and noted on their map by the name "Hat Rock."

The site is located on both sides of Hat Creek, a little distance from the river proper. The principal exposure, on the east bank of the creek, was 50 yards from the river; the one on the west bank was 100 yards from it. Both exposures were fairly high on the steep hillsides, and were 40 or 50 feet above the normal river level. Extensive testing of the west bank uncovered cultural material beneath the pumicite, but the pumicite stratum itself had been almost decimated by rodent burrowing. Since nearly ideal conditions were found on the opposite bank, the material on the west bank may be ignored.

The exposure of the volcanic ash on the east bank was merely 6 or 8 feet of badly slumped material. Initial excavation, after the establishment of a grid pattern for horizontal control, was in the form of a broadface 10 feet wide. It was soon extended to 30 feet after cultural materials began to appear under the volcanic ash (pl. 31, *a*).

The ash stratum sloped slightly toward the river and slightly more toward the creek, thus dipping toward the northwest at about 3 degrees. Its mean thickness in the excavated area was 17 inches, but a few hundred yards up the creek, in a small depression, it had accumulated to a thickness of 7 feet. The later deposit was due to wind redistribution. Beneath the ash was a stratum of sandy loess soil thinly scattered with broken rock, charcoal, animal bones, and an occasional hearth. This midden, averaging 3 feet in depth, rested on a hardpan of undetermined thickness. Some charcoal flecks and bone fragments were embedded in the hardpan, but below the first tenth of a foot, it was sterile.

Recent erosion has eliminated part of the site, the extent of which is not known. As excavation proceeded and the broadface advanced some 20 feet, the thickness of the overburden increased to serious proportions, 5 and more feet of sterile coarse sand. The eastern extremity of the site was not reached.

Primary consideration was given to the maintenance of stratigraphic controls. Every effort was made to be absolutely certain that the excavated material was unquestionably older than the ash stratum. This involved a careful inspection of the ash stratum to detect any penetration before the midden beneath it was excavated. By using a step pattern of excavation, 1 foot wide along the length of each 10-foot square, the overburden was removed. The ash along a 10-foot horizontal strip was examined and then removed to expose the midden. This procedure was repeated as each section of the broadface advanced. No penetrations other than small rodent burrows were found.

The coarse sand overburden was tested repeatedly by screening and found to be absolutely sterile of cultural materials. The coarse sand rested conformably upon the ash, so that there was no possibility of the cultural materials having fallen down through the rodent burrows.

If the sheer volume of burned bones, flakes, and firecracked rock was not proof enough, several artifacts, hammers and choppers, were found to be considerably larger than the rodent holes. Furthermore, hearths composed of rocks and mussel shells were found in situ.

It was realized that the Hat Creek site was important to the regional prehistory, especially since it was the first clear example of pre-ash occupation. Therefore, it was decided that as much as possible would be saved for laboratory analysis. After the slumped face was cleared, every bit of the midden material was screened through a one-fourth-inch mesh hardware cloth. Every flake, fragment of bone, and broken rock was saved. Arbitrary 1-foot levels were maintained for bones and flakes, with the ash stratum as the datum plane. Every artifact recovered during the excavation was recorded in three dimensions to the nearest one-tenth of a foot. Closer inspection in the laboratory turned up several small artifact fragments among the flakes. These might well have been overlooked had the flakes not been saved.

Analysis of the three levels of flakes showed that there was no significant variation in materials from one level to the next. A level between 3 and 4 feet below the ash included some of the sterile hardpan, and for that reason is not included here. In numbers the flakes were highest in the middle level and lowest in the upper level. The same was true of the artifacts. Perhaps the intensity of occupation was dwindling before the volcanic ash fell.

If there was any change in the material culture during the occupation at Hat Creek, it did not show up in the relative position of the artifacts. The similar proportions of stone materials also bear this out. Therefore all of the cultural material is treated as though it were the result of a single occupation.

The following tabulation shows the distribution of flakes by materials, and is based on 3,000 flakes:

	Percent
Basalt	52.7
Crypto-crystalline	30.9
Quartzite	9.8
Red ocher	6.1
Obsidian	.4

ARCHITECTURE

There was no evidence of habitations at the Hat Creek site. If the small fireplaces found there had been associated with dwellings, the latter left no traces. Since the depth of the midden suggests an occupation of some duration, some sort of shelters must have been built. It is probable that such shelters were made of brush or mats, and that they were light enough to stand without large posts.

MATERIAL CULTURE

The Hat Creek site did not yield a large sample of material culture, but nevertheless the recovered materials permit certain conclusions. In addition to a certain amount of noncultural data, some 97 artifacts were recovered from beneath the volcanic ash.

Most frequent among the artifacts recovered were projectile points and fragments thereof. Twelve of these were either complete or lacked only the tip of the point, so that their shape could be determined with some accuracy (pl. 32, *b*). Of these 12 artifacts 10 were of a simple "leaf" shape, with no notches, barbs, or shoulders. They were oval in outline with convex bases. Two traits of manufacture were shown. Several of the projectile points were markedly planoconvex in cross section, and several had deliberately serrated edges. Some specimens had one or both traits, some had neither. The specimens that could be measured varied from 39 to 51 mm. in length and from 17 to 24 mm. in width.

Another variety of projectile point was represented by two specimens. The only noticeable difference between this and the preceding type lay in the base, which is concave instead of convex. Complete specimens of the second type were not recovered, but there appeared to be a close similarity in size and general appearance.

The 33 fragmental projectile points bore out the conclusions made earlier, that no notching or shouldering was apparent and that planoconvexity and serration were common. Workmanship throughout was considered excellent; the people who made these artifacts knew what they were doing, and excelled in flaking several kinds of material. Twenty of the points and fragments were of basalt, and the rest were of local quartz family rocks, jasper, agate, or chert. Obsidian, which became popular at a later time, was absent.

One fragment, tentatively classified as part of a projectile point, merits some further discussion. It was a midsection, of basalt, but wider and thicker than the other fragments. When complete, it would have been larger than the other projectile points, possibly much larger. The flaking was not as well done as the rest of the points, and there is reason to believe that it may have been a knife. Large basalt knives were typical of the early occupation of the Cold Springs site, stratigraphically later than the Hat Creek culture (pl. 35, *b*). They were associated there with projectile points identical with those from beneath the ash at Hat Creek.

Since every flake recovered from the Hat Creek site was brought back to the laboratory, a large number of used flakes were counted. The majority of these were primary flakes of jasper, basalt, and chert that had been used for cutting or scraping. Usually, one edge showed a row of tiny flake scars, the result of having been used. The scrapers that had been prepared before use, on the other hand, showed larger and longer flakes, as well as some intentional shaping. Altogether, only 6 of the 27 scrapers appeared to have been prepared for use. Size and shape seemed to make little difference to the inhabitants of the site, and the materials used were those available in the river gravel.

Tools used for hammering and chopping were made from river-worn cobbles, for the most part (pl. 33, *b*). The hammers (5 specimens) were unaltered cobbles that showed the scars and abrasions of use but no intentional shaping. The chopping tools can be divided into three types. One of these (13 specimens) was the ovoid river cobble from which 5 to 15 large flakes had been struck. It produced a ragged but effective cutting edge. Another type (5 specimens) was a heavy spall struck from a river-worn cobble and crudely chipped to a cutting edge. A third type (4 specimens) was made from an exfoliated basalt slab which had a wedge-shaped cross section.

Characteristically, all of the heavy tools left something to be desired in both the selection of stones and in the chipping. The cobbles were seldom symmetrical and would seem to fit the hand poorly. The chipping was crude, for the flakes removed were fewer and larger than would be characteristic of later workmanship. This does not mean that each hammer and chopper in the McNary region can be assigend readily to a pre- or post-ash date by inspection, but, as a group, those tools from beneath the volcanic ash are distinguished by their crudeness.

A total of seven bone artifacts came from beneath the volcanic ash. Two of these were slender splinters, probably from a deer long bone, that showed some wear and polish at the point and along the shaft (pl. 33, *a*). Little or no effort had been expended in improving their appearance or utility. Two beads of bone had been fashioned from bird tibia (pl. 33, *a*). One was just under 2 cm. long and 7 mm. in diameter. The other was 3.5 cm. long and 4 mm. in diameter. Both had been decorated by incising a few transverse lines on the surface. Two small sections, broken out of the shaft of a deer long bone, had been incised with deep parallel lines. The complete artifact type is not known but must have been ornamental. A final piece of bone is not actually an artifact but a residual fragment. A section of long bone had been deeply grooved and snapped off. What was recovered was the waste of the making of some unknown artifact.

The simplicity of the bone tools and ornaments seems to agree with that of the other artifacts at the Hat Creek site. Only the projectile points are really objects of craftmanship. It appears that, except for projectile points, almost no effort at all was made to improve or finish an artifact.

ECONOMY

The animal bones from the Hat Creek site have not been thoroughly analyzed. A preliminary analysis showed that, numerically speaking, rabbits were most frequently killed, then deer, followed by salmon. Bird bones were present in the midden, but their fragmentary condition did not permit an immediate identification as to species. Almost all the animal bones were broken and a great many of them were partially burned. The proportion of fish bones found at the Hat Creek site was smaller than that at any other site excavated in the McNary region. As will be shown in the description of material culture, specialized fishing was apparently not developed at the Hat Creek site. The relative scarcity of fish bones bears out this observation.

Ethnographic reports tell of fish being taken with clubs, with lances, and with bow and arrow. It is quite possible that techniques of this sort were employed during the occupation at Hat Creek since no net weights were recovered.

SITE 35–UM–3

About 2 miles west and downstream from Hat Creek on the same (Oregon) side of the river is site 35–UM–3. It is situated on a hillside that slopes toward the river and is 30 or 40 feet above the normal river level. The site itself is in and around a large sand blowout, some 150 feet long and 75 feet wide (pl. 31, *a*). In the center of the blowout there was an erosional remnant of midden capped with a thick stratum of volcanic ash that in turn was capped with a stratum of sandy loess.

The volcanic ash is part of the same ashfall that is present at Hat Creek and Cold Springs. At 35–UM–3 it was undisturbed except for occasional rodent burrowing. The sand over the ash was sterile and contained no habitational debris. Beneath the ash there were some signs of occupation, but it could hardly be called a midden. The animal bones and flakes were thinly scattered through some 2½ feet of sandy deposit. On both sides of the erosional remnant the wind had blown out about 6 or 8 feet of sand and ash. The surface of the blowout was paved with flakes, broken rock, mussel shells and occasionally an artifact. It cannot be proven, but it is suspected that the cultural debris came from beneath the volcanic ash.

Test excavations beneath the ash recovered a few flakes, a spall flake scraper or knife, and a basal section of a projectile point. The latter, leaf shaped with a convex base, would fit easily into the collection from Hat Creek. The test excavation was not large, and a very small sample was recovered, but it demonstrated that the situation at Hat Creek was not unique. On the surface of the blowout a small fragment of bone was found. It was incised in exactly the same way as were the two fragments from the Hat Creek site. The few chopping tools from the surface were also similar but contemporaneity cannot be proved.

SITE 35–UM–7 (COLD SPRINGS)

The Cold Springs site (35–UM–7) lies about 3 miles east and upstream from Hat Creek. Situated on the south bank of the river, the site can be detected by its numbers of pit-house depressions, musselshell fragments, and broken rock on the surface.

The site occupies a terrace which was not inundated except by the highest floods, such as occurred in 1903 and 1948 (pl. 34, *b*). Its composition is for the most part fine silt and wind-blown sand, although no small part of the volume is made up of the midden debris of man, shells, and broken rocks. This terrace is rightly 150 feet wide and 1,500 feet long. The midden material, where tested, averaged some 5 to 5½ feet in depth.

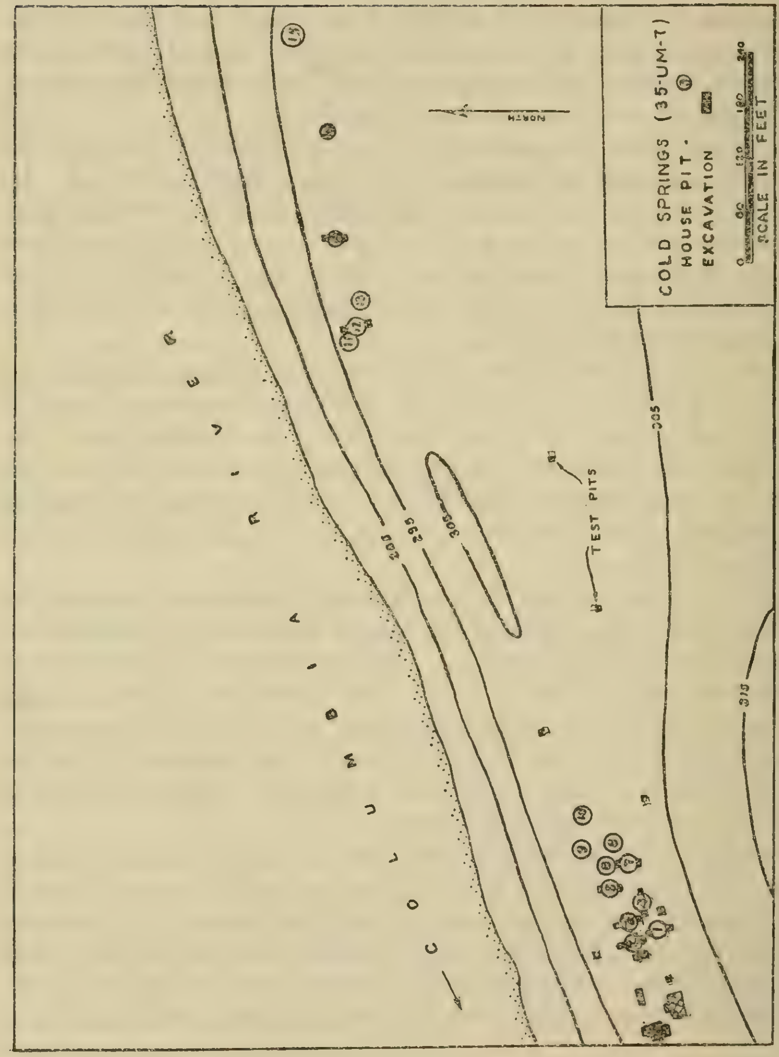
Beneath the midden, but not altogether in stratigraphic conformity with it, lay a stratum of volcanic ash. This was the same stratum that was exposed at Hat Creek, and that covered the midden there. Although there had been some slight erosion of the ash at Cold Springs, and it had been severely burrowed through by rodents, it formed an excellent point of orientation in relating the Cold Springs artifacts to those from Hat Creek.

Another stratum, somewhat weakly developed in certain parts of the site, was composed of shells of the fresh-water mussel (*Margaritifera margaritifera falcata* (Gould)). This stratum was more or less continuous over most of the site in the form of contiguous lenses and lay between 2 and 3 feet below the surface (pl. 34, *a*). Its thickness varied from about 1 inch to nearly 1 foot, and it was made up of tightly packed shells, some burned and some unburned. Practically nothing else was to be found in the shell layer.

Since the Cold Springs site was excavated prior to the excavation of the Hat Creek site, the Cold Springs materials were reexamined. In 1952, additional testing was done at Cold Springs, and a larger sample of artifacts was recovered. Altogther, some 2,500 man hours were spent in excavating the site, but only a small collection of artifacts was recovered. Less than 200 specimens were cataloged.

ARCHITECTURE

No traces of dwellings had been found at the early sites 35–UM–5 (Hat Creek) or 35–UM–3. It was at the Cold Springs site that the first evidence of architecture was found. Houses in the McNary Reservoir region are poorly preserved, and not much information can be recovered from their excavation. The more recent houses


COLD SPRINGS (35-UM-7)
HOUSE PIT -
EXCAVATION
0 60 120 180 240
SCALE IN FEET
NORTH
TEST PITS
COLUMBIA RIVER
285
295
305
305
315

Map 3.—Cold Springs (35-UM-7).

showed a surface depression that was saucer shaped. The older houses often had no surface indications at all. Most of the dwellings in the region had traces of floors that could be picked up only near the center of the houses. The floor level, when present, was found as a charcoal and ash stain that did not extend to the edges of the house. (Map 3.)

House pit 3, at the Cold Springs site, showed a depression on the surface of the ground and was carefully excavated (fig. 25). Although there was little direct evidence of it, there were apparently two or more occupations of the house site.

During the excavation, no trace of a floor was found until a depth of 3 feet was reached. At first it was believed that the deep floor belonged to the surface depression. However, the contour of the depression plotted before excavation did not match the contour of the deep floor. The floor center proved to be more than 7 feet southwest of the center of the depression. Furthermore, artifacts found just above the deep floor were of a type associated with the earliest occupation of the site; they included two of the large basalt knives. It follows therefore, that the depression that plainly showed on the surface belonged to a house that had been occupied at a later time. Another reason for this conclusion was that the thick layer of discarded mussel shells that blanketed this portion of the site was not present in the fill of the house pit. This showed that the house had been occupied during or after the period in which the shells accumulated. Since an average of about 3 feet of midden had accumulated before the deposition of the shells, the shell layer was stratigraphically later than the early artifact complex found both in the midden and in the earliest house. In brief, the house was occupied at a time when the earliest material culture at the site was being used. Later, the thick layer of shells accumulated. The final occupation of the house came after the shells had accumulated, and the occupants apparently cleaned the trash out of the house pit before living in it.

Time did not permit the full excavation of the deep floor but a good profile was obtained. It showed the house to be bowl shaped, sloping up toward the surface with no vertical walls. No features were observed. This negative evidence that was to be repeated in nearly every house excavated in the region was actually of some significance. It limited the type of superstructure to something that may be visualized. Obviously, there was no heavy structure of wood, for there were no postholes. A roof entrance would hardly have been possible without interior posts. A flat roof flush with the ground would not have left more than 2 or 3 feet of space under it, even in the center of the house. What is indicated here is light framework, perhaps of small poles, covered with mats. Mats are mentioned in all of the early travelers'

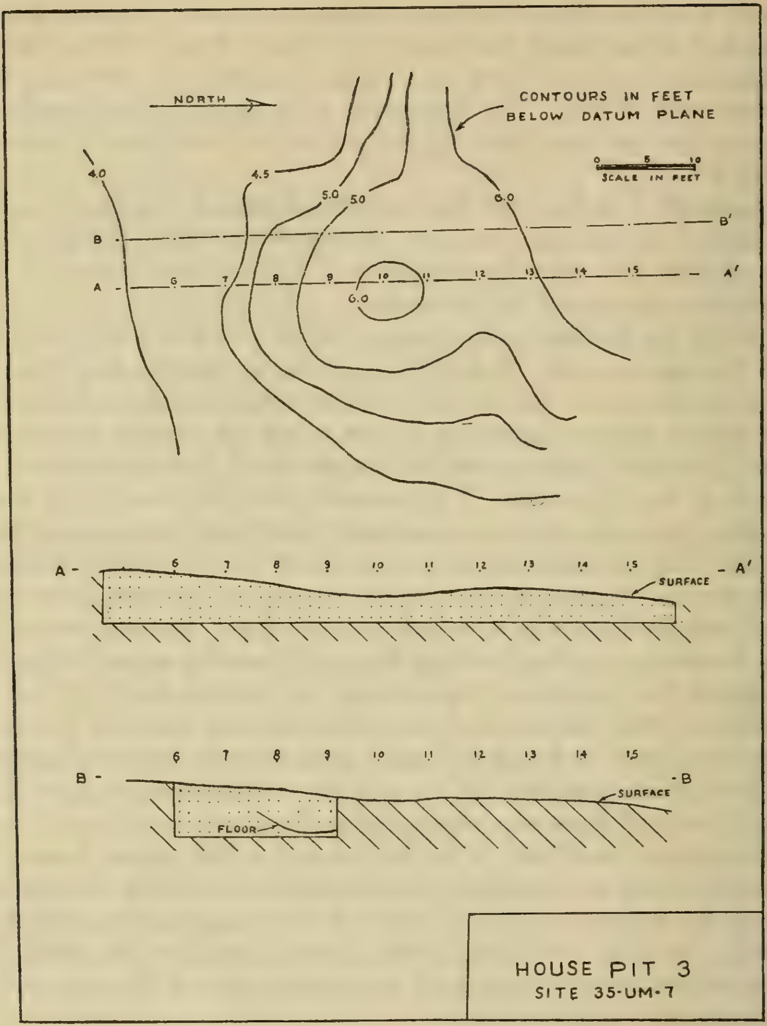

NORTH
CONTOURS IN FEET BELOW DATUM PLANE
0 5 10
SCALE IN FEET
4.0
4.5
5.0
5.0
6.0
6.0
B
B'
A
A'
6
7
8
9
10
11
12
13
14
15
SURFACE
FLOOR
HOUSE PIT 3
SITE 35-UM-7

FIGURE 25.—House pit 3, site 35–UM–7.

reports, and traces of them have been found in most of the McNary sites, including Cold Springs.

In most cases there is a slight rise or mound around the perimeter of the house pits. While it might be no more than back dirt from the house, there is reason to suspect that this earth may have been banked against the lower edges of the matting. If this were the case it would eliminate the necessity of sinking posts into the ground for stability.

There is no direct evidence of a doorway in any of the houses. However, in three houses that were carefully contoured, one side, the one facing the river, was slightly lower than the rest of the perimeter.

This may reflect only the slope of the terrace toward the river, but it is the only evidence indicative of an entranceway.

Reoccupation of old houses seems to have been a pattern. It would be far easier to clean out an old house depression than it would be to dig a new one. This could account for the lack of material culture found in the house fill. Apparently, every so often, as the house began to fill with trash, it was cleaned out to the depth desired.

Traces of another house that probably should be assigned to the early period were found during the excavation of the midden. It was approximately 50 feet southwest of house pit 3. Badly disturbed by later occupation, the floor that remained consisted of only a thin charcoal stain about 3 feet in diameter. No surface depression was evident and practically no information could be gained from working about the remains of the floor.

House pit 12, located at the eastern extremity of the site, had been occupied at least two times. The earlier floor was in the form of a deep bowl (fig. 26), and the later floor was more saucer shaped. Unfortunately, the only artifacts associated with the deeper floor were ubiquitous hammers and choppers, so that the house could not be assigned to any period. The shell layer that was so prominent at the western end of the terrace did not extend as far east, so it could not be involved in the stratigraphy. As near as could be determined, the earliest indistinct floor of house pit 12 was of about the same size and shape as the early floor in house pit 3. The later occupation of the pit left almost no traces; only a slight discoloration near the center of the depression.

House pit 4 (pl. 36 and fig. 27) presented another picture of multiple occupations. The earlier floor of the house was saucer shaped as far as it could be traced, and had a small fireplace in the center. There were two strata of mussel shells just outside of what seemed to be the edge of the dwelling, and they appear to represent two periods of occupation of the house. A later house utilized at least part of the depression of the first house, but was centered approximately 7 feet to the east. The later house was larger (43 feet in diameter), and was stratigraphically later than the two thin layers of mussel shells. If it was correct to correlate the shell layers with the occupation of the earlier floor level, that occupation may in turn be correlated with the deposition of the thick shell layer that covers the central portion of the site. The shell layers near the house were proved to be parts of the major shell deposit.

After the later house had been abandoned, the depression of house pit 4 was used for the construction of a large earth oven.

Large lens-shaped concentrations of fire-cracked rock were found at three different places on the site. In each case the concentration was

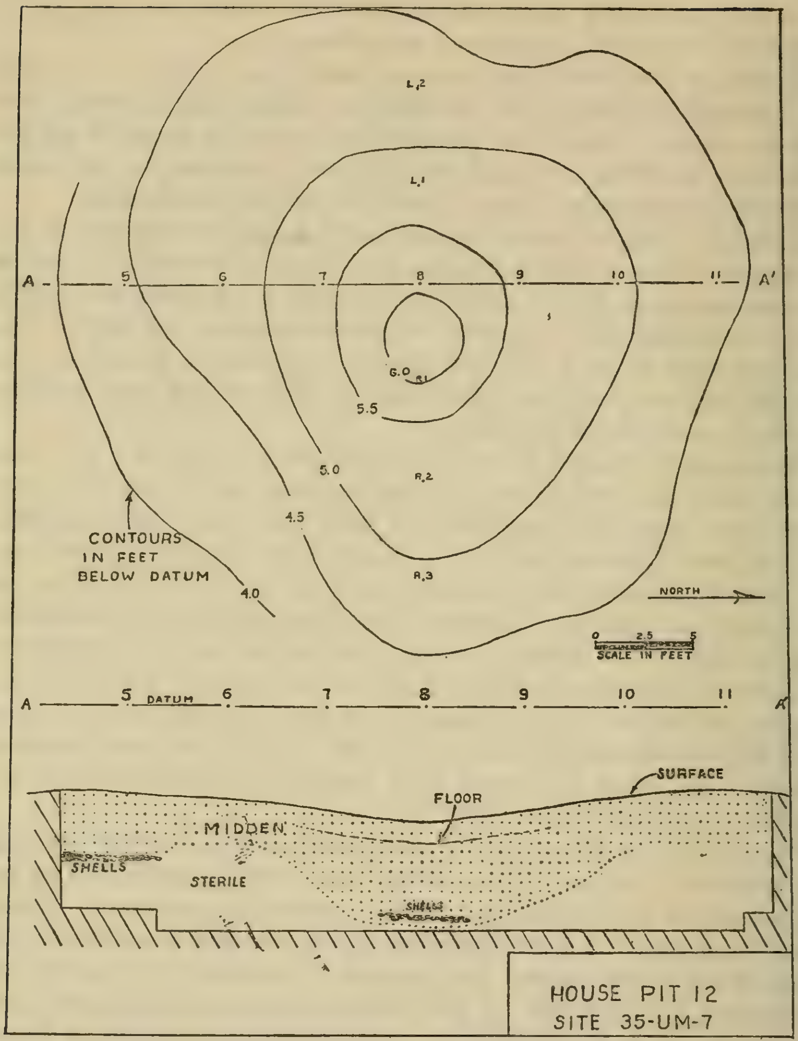

L.2
L.1
A
5
6
7
8
9
10
11
A'
6.0
6.1
5.5
5.0
R.2
4.5
CONTOURS IN FEET BELOW DATUM
4.0
R.3
NORTH
0 2.5 5
SCALE IN FEET
A
5
DATUM
6
7
8
9
10
11
A'
SURFACE
FLOOR
MIDDEN
SHELLS
STERILE
SHELLS
HOUSE PIT 12
SITE 35-UM-7

Figure 26.—House pit 12, site 35-UM-7.

just beneath the surface and for this reason they are believed to belong to the latter part of the occupation of the site.

The first of the features, which have been called earth ovens, was approximately 4 feet in diameter and about 5 inches in depth. The second (pl. 36, *b*) was about 6 feet in diameter and the third was 11½ feet long and 5 feet wide. Small quantities of charcoal were scattered through the first two features and a large concentration of charcoal was present in the third feature. While the first two earth ovens were unassociated with other features at the site, the large one was found in the center of house pit 4. There is no question as to its

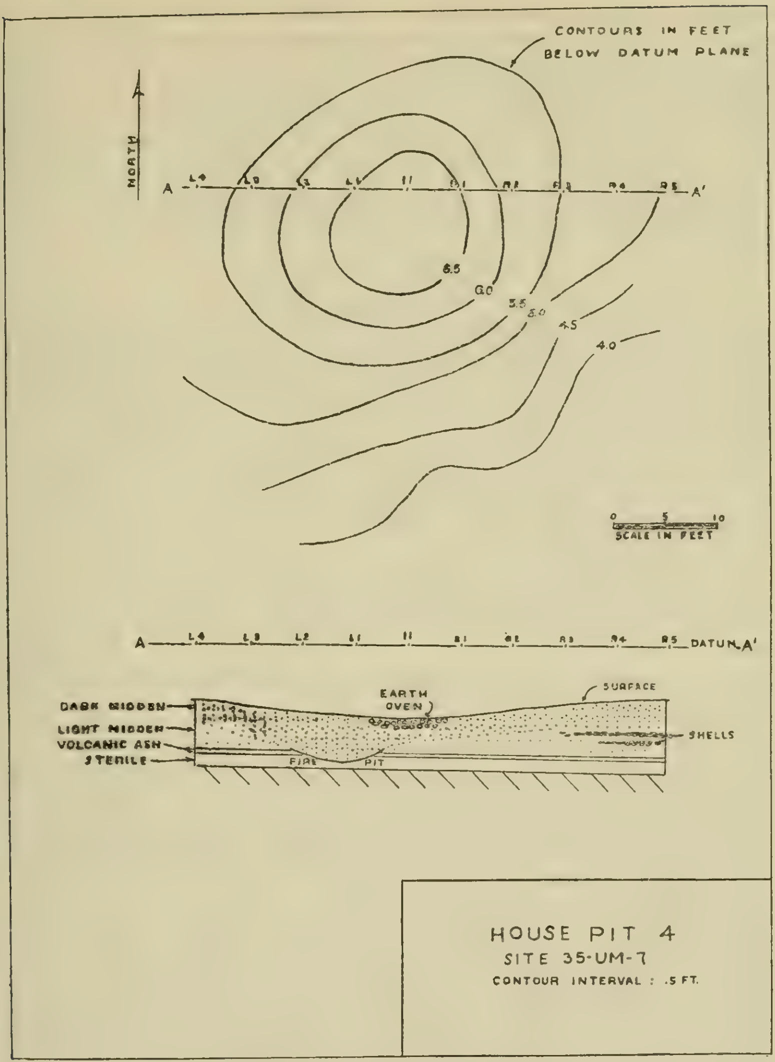

CONTOURS IN FEET BELOW DATUM PLANE
NORTH
A
L4
L3
L2
L1
11
R1
R2
R3
R4
R5
A'
6.5
6.0
5.5
5.0
4.5
4.0
0
5
10
SCALE IN FEET
DATUM
DARK MIDDEN
LIGHT MIDDEN
VOLCANIC ASH
STERILE
EARTH OVEN
SURFACE
SHELLS
FIRE PIT
HOUSE PIT 4
SITE 35-UM-7
CONTOUR INTERVAL : .5 FT.

FIGURE 27.—House pit 4, site 35-UM-7.

relationship to the house, as is shown in the discussion of that house. It obviously was constructed in the depression after the house had been abandoned.

To understand the use of an earth oven it would be best to quote the experience of Collier and his associates in the Grand Coulee Reservoir area:

> We observed the process of cooking camas in an earth oven at the house of Rosie Seymour, 84 year old Okanogan-Lakes woman living at Kelly Hill in the hills north of Kettle Falls. A pit four feet square and ten inches deep was dug. The pit was covered with timbers and rocks were piled on top of the timbers.

> The timbers were fired, and when they had burned down and the rocks had fallen into the pit, the latter were leveled and covered with green tule. The six sacks of camas were placed on the tule and covered with tule and damp grass, then with a layer of earth, and finally with a carefully laid layer of sod. Over the resulting mound was piled wood, which was in turn covered with green willow branches and leaves to prevent rapid combustion. The top fire was kept going nearly forty-eight hours and then the camas bulbs were removed. The remaining pile of burned and cracked stones resembled precisely the burned rock areas described above. [Collier, Hudson, and Ford, 1942, p. 38.]

MATERIAL CULTURE

In the earliest trash that accumulated above the volcanic ash, the stone and bone artifacts were practically identical with those recovered at the Hat Creek site. These artifacts included cobble hammerstones, cobble choppers, flake scrapers, and leaf-shaped projectile points. The early trash in this case is considered to be approximately the first 12 inches of midden that accumulated above the ash. This must be approximate, for there was no even distribution of trash over all the site at all times.

The closest similarities between the artifacts of Hat Creek and Cold Springs are to be found in projectile points and scrapers. Both were made of like materials, jasper and basalt, and both were flaked in the same manner. Five leaf-shaped points were recovered in the first foot of the postash deposit (pl. 35, *b*, bottom row). They varied from 41 to 48 mm. in length, which compares favorably with the 39 to 51 mm. of the projectile points from Hat Creek. The same tendencies toward planoconvexity and serrated edges were present at Cold Springs as had been noticed at Hat Creek. All in all there is so close a similarity between the points of the two sites that a continuity must be considered.

Some differences must be noted. At Hat Creek 2 of the 12 classifiable points had concave bases, a variety that was not found in the early midden at Cold Springs. Furthermore, at Cold Springs, associated with the five projectile points just described, was one side-notched point with a concave base. It will be recalled that none of the points from Hat Creek were notched or barbed. This single specimen might be termed the earliest (in our collection) of a type that became more numerous, and soon replaced the leaf-shaped type.

Not much can be said of the hammerstones and choppers. These crude tools apparently were used and discarded at will. The most frequently used material was a tough fine-grained basalt. Hammers were either unaltered cobblestones from the river gravel or choppers that had been worn and dulled. The tools classified as choppers were also river cobbles, but had been roughly flaked to a jagged cutting edge. There is little chance that either the hammerstones or the choppers had been hafted—their shapes would have made it most difficult—and there was no sign of grooving. In comparing these tools with those from Hat Creek, a few general observations may be made. The Hat Creek specimens were of inferior manufacture and showed less use than those from Cold Springs. In most cases, the cobbles selected for use at Cold Springs were more symmetrical and would have been easier to handle.

A new type of chopping tool appears at Cold Springs, and stratigraphically shows up in the early part of the occupation. It is made on flat oval or round river cobbles. The diameter is usually between 60 and 100 mm. and the thickness between 10 and 15 mm. Basalt was usually the material used, but it is not of the tough fine-grained variety that was preferred for the cobble choppers. This tool that may well have been used for scraping and fish scaling, as well as chopping, was made in several forms. The edge of the flat stone was flaked from both sides to produce a tool with a single bit, or one with a double bit, or occasionally one with a cutting edge all the way around. The early or deepest portion of the midden showed only the type with the single bit, and the others appear to develop somewhat later. Altogether 10 of these tools were recovered at the Cold Springs site, and the minority, about 4, were assignable to the early portion of the midden.

Three kinds of net weights were found at the site, and each type appeared early in the occupation. The type of which the most specimens were recovered was the notched net weight (pl. 41, *b*). It was made from the same kind of flat river-worn rocks that were used for the chopping tools described above. The materials selected were the same as for the chopping tools, but there was a preference for more oval stones in preparing net weights, and more circular stones for the choppers. The notched net weight was prepared, as the name suggests, by notching both ends of the flat oval stone, so that it could be secured to the net. In most cases there is evidence that the sharp edges of the notch were abraded in some way, so that they would not cut the binding cords. Perhaps five notched net weights could be assigned to the early part of the occupation. At least two specimens apparently were discarded or lost shortly after the occupation began at the site.

Another type of net weight was of the same general proportions but about twice as large. It was bored through with a hole 15 mm. in diameter placed near one end, but otherwise it was unaltered. Several artifacts of this type have been picked up on the surface along the banks of the Columbia, but none besides this one seem to have been found in direct association with other archeological materials.

The third type of net weight was an ovate river-worn stone with dimensions 16 cm. by 13 cm. by 7 cm. Plate 41, *b*, shows a similar specimen. The material is quartzite, and it has a shallow groove circling the smaller diameter. As with the other types of net weights, the only alteration of the stone was in creating a means of fastening it securely to the net. One girdled and one pierced net weight were found, both of them associated with the early part of the occupation.

Stone knives used during the early occupation of the Cold Springs site were of two general types (pl. 35, *a*). One type was a basalt blade, long and slender, with overall chipping. The chipping was rough and appeared to be of the percussion type. Each of the three complete specimens was pointed at each end, although the bases were blunter and somewhat thicker in cross section. One of the three had a deliberately made shoulder on one side only. This specimen bears a striking resemblance to the Sandia point of New Mexico; however, it is longer, more slender, and probably considerably later in time. The lengths of the complete artifacts varied from 12.7 cm. to 14.5 cm. There was a slight curvature of the longitudinal axis prominent in two of the knives, but not in the specimen that was shouldered. In addition to these, there were two fragmentary knives (midsections) that seemed to conform in size and shape, and were also made of basalt.

The second knife type, represented by two specimens, is considerably shorter and wider than the first. One of these was 7.7 cm. long and 3.8 cm. wide, and the other was 8.3 cm. long and 4.9 cm. wide. Both were of basalt, were well made, and had convex bases.

Besides these two knife types there were found two large rough blades made on primary flakes. Only one edge of the flake was deliberately shaped, so these specimens were not classified as a diagnostic type of knife.

Stratigraphically later than most of the material described above were 15 side-notched projectile points (pl. 35, *b*, top two rows). This point type apparently came into use after the site had been occupied for a while, existed side by side with the leaf-shaped point, and then replaced it entirely. Besides the five leaf-shaped points described for the early part of the midden, three more of them were associated with the side-notched points. There is considerable variation in the size of the side-notched projectile points. The range is from 3.2 to 6.6 cm. in length, but with no significant size variation according to depth below the surface. Even the smallest of these points are larger and heavier than the small types found in late sites. Thirteen of the fifteen side-notched points have concave bases, and the rest of the bases are either straight or slightly convex. All kinds of materials were used for the side-notched points, with basalt most frequently employed. Obsidian, jasper, and chalcedony were about equally distributed.

There were two pieces of carved stone associated with the upper part of the midden. One of these was a small oval piece of steatite that had been drilled for suspension but had not been finished. The second was a carefully made steatite tubular pipe. It was bell shaped with a short stem that had a small flanged mouthpiece. A nearly identical specimen found at site 45–BN–3 is shown in plate 43, *b*.

Bone tools were relatively scarce. Since large numbers of animal bones were recovered at all levels, preservation is probably not a factor. Those tools that were recovered were for the most part crude and showed that little attention had been paid to their preparation. They included a tip of a broken flaking tool and the tip of an antler tine that may have been used for the same purpose. Two slender tips of splinter awls had been ground to fairly sharp points but received little treatment along the shaft. One bone bead, apparently from the leg bone of a large bird, was nearly identical in size and shape to one recovered beneath the volcanic ash at the Hat Creek site. It was 1.9 cm. long and 0.6 cm. in diameter. Another bird leg bone had been girdled for breaking but had split during the operation.

The only specimen of marine shell found was a bead of *Olivella biplicata* with the tip ground off so that it could be strung. It was probably associated with the later part of the occupation of the site, and represents the earliest occurrence of seashell in the McNary region that has been recognized.

One of the most unusual artifacts found at the Cold Springs site was a bone projectile point. It had been carved in such a way that it appeared to have been chipped from stone. Its size and shape were identical with several of the side-notched projectile points, and had it not been for its light weight, it could easily have been mistaken for a stone projectile point.

Here and there about the Cold Springs site were evidences of a late occupation. The materials associated with it—large glass beads and rolled copper tubing—were indicative of a post-European contact period. The type of bead found here is not the earliest kind that was traded into the area, and is believed to be of the historic period. The material culture of the Cold Springs site, excluding this late occupation, is typologically earlier than that of two other sites, 35–UM–17 (Techumtas Island) and 45–BN–53. These last two in turn, judging from trade goods, are earlier than the last occupation of the Cold Springs site.

What is indicated, then, is an abandonment of the Cold Springs site and a later superficial reoccupation. Several houses, Nos. 5, 7, and 14, were apparently cleaned out and reoccupied. Besides the glass and copper several new artifact types came into the picture. Projectile points associated with this occupation were small and thin, averaging between 20 and 25 mm. in length. Three specimens were side notched, two were barbed, and the other was leaf shaped. Choppers were carefully made with symmetrical double bits, and a chipped stone fetish was associated with these materials. This last artifact requires some discussion (see pl. 37, *a*, bottom row, center).

Admittedly, there is some question as to the use of the artifact, but there is no reasonable explanation of it as a tool form. It was made by splitting a small discoid pebble of quartzite that was from 3 to 7 cm. in diameter. Two opposite edges of the spall were then chipped away until the outline was wider at one end than at the other. Two arcs of the original circle are left, one larger than the other. In the edge and at the center of the larger arc a small notch was cut. Usually, when preservation permits, red ocher is found rubbed into the notch.

An Indian at Celilo Falls, Oreg., identified one of these objects as a "good luck stone" formerly carried by young men. He stated that it was an effigy of a man (actually it looked more like a headless torso), and that the broader arc represented the shoulders and the notch represented the neck.

ECONOMY

Unfortunately, the large collection of animal bones recovered at 35–UM–7 were not examined thoroughly by an expert. A preliminary examination, however, led to the identification of a number of animals that were probably used for food. The bones of fish were the most numerous of all. Salmon, trout, and sucker were identified. Among the mammal bones, the most frequent were those of deer, followed by the brush rabbit and the jackrabbit. Bones of elk, mountain sheep, porcupine, and several kinds of birds were also present. Due to incomplete analysis, it is not possible to state whether or not there were changes in the type of game sought through the duration of the occupation. It was noted, however, that fish bones were numerous at all depths in the midden.

The river mussel was used for food at all times. During one short span, apparently toward the end of the major occupation, there was heavy reliance upon river mussels for food. At this time, the thick layers of shells were discarded over a large portion of the site. Whether this was caused by a failure of the annual salmon run or not it is impossible to determine.

Specialized tools that could have been employed in gathering vegetable foods were not recovered. Several flat stones showed evidence of having been used for grinding some substance. These were not mortars, but slightly used slabs of basalt. Specialized hunting and fishing artifacts were numerous, as can be seen in the section on material culture. Both the long slender basalt knives and the discoid choppers could have been used in preparing meat and fish for drying. In spite of the lack of data on gathering, it must be assumed that a balance existed between hunting, gathering, and fishing. The latter was very likely the most important to the economy.

FURTHER OBSERVATIONS

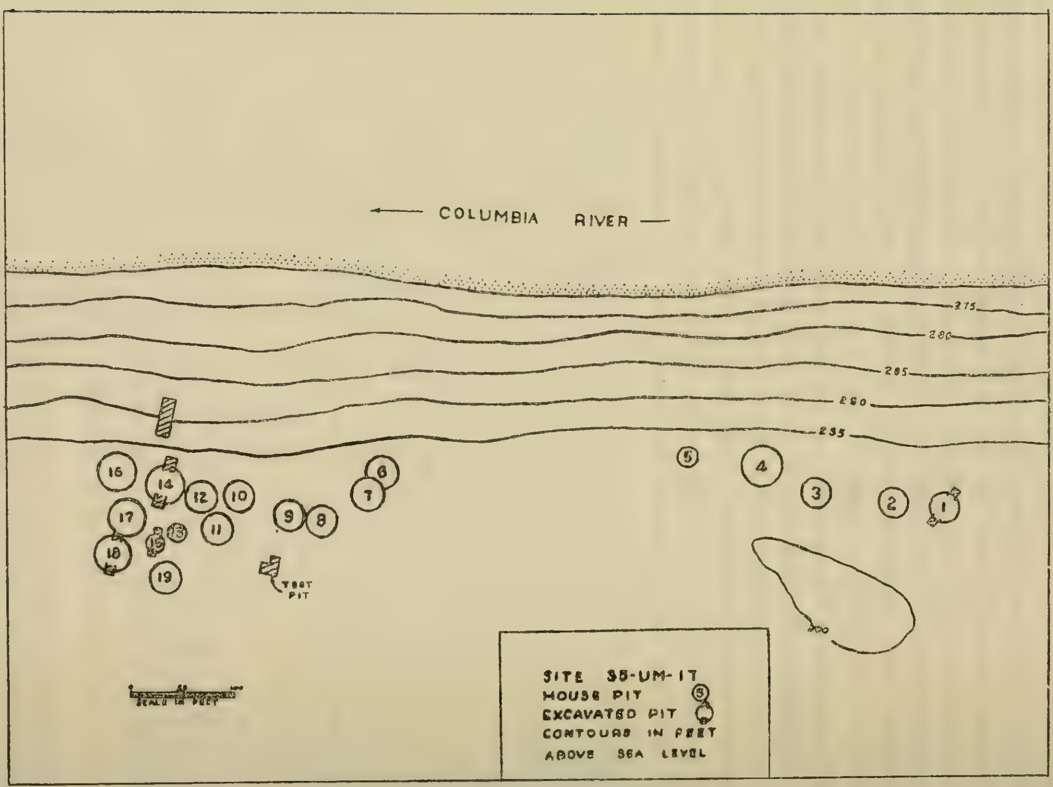
Rodent activity at the Cold Springs site had been extensive. It showed clearly in all profiles, for many of the burrows contained the dead white volcanic ash from the substratum that contrasted sharply with the gray sandy midden. One thing did a great deal to prevent wholesale mixing of the midden; that was the thick dense layer of mussel shells which interposed itself approximately halfway between the volcanic ash and the surface of the site. Thus, burrowing above the shell layer rarely penetrated below it. The burrows below the shell layer seemed to be confined to the period prior to the shell deposition. In spite of the labyrinth of holes, most fireplaces, house floors, and other features were still discernible. Fishbones were often still articulated, and fragments of fiber matting were in situ.

A peculiar feature that did not lend itself to categorical treatment was found at a depth between 2½ and 3 feet. It consisted of a carefully piled mass of 79 flat river-worn cobbles. The stones were 4 to 7 inches in diameter and 1½ to 3 inches thick. They showed no evidence of burning, flaking, or hammering. Centered beneath the cairn was a single scapula of an elk and nothing else. There is, of course, room for much speculation on the interpretation of this feature. No reference to such practice could be found in the ethnographic literature.

There were one or two things evident in the settlement pattern at the Cold Springs site. First, the material which seemed to be relatively early was concentrated at the western and west-central portion of the site. The later materials were found there, as well as considerably farther to the east. The exact limits of the earlier part of the occupation were not determined. The pit houses on the site, that is, the surface depressions, were divided into two groups (map 4). There were 11 houses at the western end, 6 houses at the eastern end, and a space of 500 feet in between. If there were houses in the space between the two groups, no surface indications remained.

SITE 35–UM–17 (TECHUMTAS ISLAND)

The Techumtas Island site is located about 1½ miles northeast and upstream from the Cold Springs site. The island, which is also known as Hoodoo or Sweitzer's Island, is approximately 9 miles upstream from the McNary Dam. From east to west it is just under 3 miles in length, and it varies between ¼ and ½ miles in width. During most of the year, the channel on the southern side is dry, so that only during the late spring and early summer does it really become an island.


COLUMBIA RIVER
275
280
285
290
295
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
TEST PIT
SCALE IN FEET
SITE 35-UM-17
HOUSE PIT
EXCAVATED PIT
CONTOURS IN FEET ABOVE SEA LEVEL

Map 4.—Site 35-UM-17.

On the channel side and near the downstream end of the island there is a small exposure of basalt bedrock. Otherwise, the island appears to be built up from a large gravel bar with a topsoil of river sand and aeolian deposits. Actually, the whole island is a flat terrace. Recent cultivation has taken place near the central part of the island, but the rest is covered with sage (*Artemisia tridentata*), grasses, and weeds. There has been much wind erosion, and duning is well developed in several places. Along the main river channel the bank slopes steeply to the water's edge. The shingled beach is composed of river gravel, well sorted by the current.

The site itself is located about 500 yards from the downstream end of the island, and is on the side facing the main channel. Nineteen well-preserved house pits and several discontinuous midden areas are scattered along the top of the bank for a distance of 850 feet. The house pits are divided into 2 groups, with 14 pits situated at the downstream end of the site and 5 pits at the upstream end (map 4). In the intervening space of 275 feet there was a small amount of midden debris but no trace of architecture. A close examination of the area led to the conclusion that it was all one site.

Some trash had been scattered about on the surface, but there are indications that most of it probably went over the bank toward the river. This pattern was recognized from the results of a great many small test pits which were excavated in a grid pattern over the length and breadth of the site. They revealed that the maximum depth of trash on the terrace was slightly more than 1 foot. The deepest penetrations into the terrace were the houses themselves, which ranged from 2½ to 3 feet. The shingle beach extended up to within a few feet (3 to 6) of the level of the terrace and clearly showed that any over-the-bank dump would be swept away by the spring floods.

ARCHITECTURE

House pit 14 was oval shaped, 40 feet long and 30 feet wide, according to surface measurements (pl. 37, *b*). Like the majority of houses in the McNary area, the long axis was parallel to the river as well as to the prevailing wind.

The first floor encountered was found at a depth of less than 1 foot below the surface (fig. 28). It was a clearly defined saucer-shaped area of charcoal and ashes, with a fire depression in the center. Unfortunately, however, it did not extend to the extremities of the house, but was confined to an area approximately 15 feet in diameter. As near as could be determined, the floor followed the surface contours of the house pit.

The remnant of an earlier floor was 2½ feet below the surface and roughly at the center of the house. It was from 6 to 7 feet in diam-

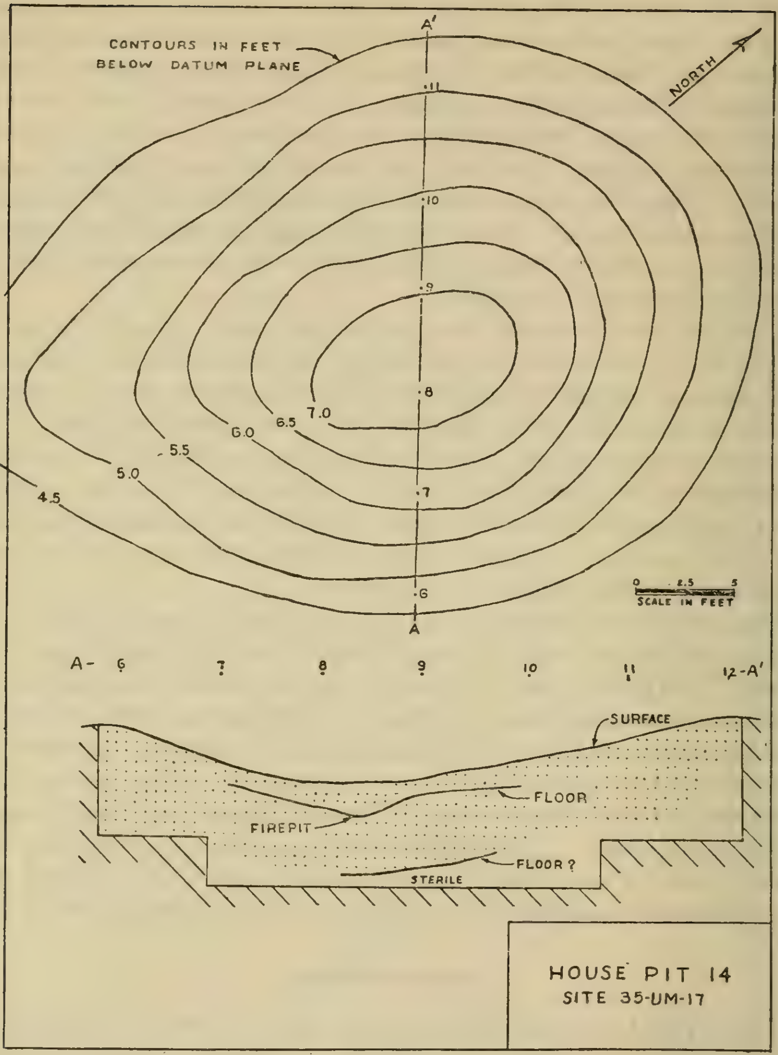

CONTOURS IN FEET BELOW DATUM PLANE
NORTH
A'
A
4.5
5.0
5.5
6.0
6.5
7.0
11
10
9
8
7
6
0 2.5 5
SCALE IN FEET
A- 6
7
8
9
10
11
12-A'
SURFACE
FLOOR
FIREPIT
FLOOR ?
STERILE
HOUSE PIT 14
SITE 35-UM-17

Figure 28.—House pit 14, site 35–UM–17.

eter and less clearly defined. As usual, it was recognized by a thin dark stain of charcoal. Below the earlier floor the soil was sterile.

House pit 15 was nearly circular and about 14 feet in diameter. The occupation level, or floor of the house, was found below the surface, and was in nearly every respect similar to house pit 14. Below the floor of the house only sterile soil was found, so that it is believed that there was a single period of occupancy.

Tests in houses 1, 9, and 18 failed to discover a living level, and excavation was discontinued. These three structures failed to produce any diagnostic artifacts. Only an occasional flake or spall could be found, although the depressions clearly were the remains of dwellings.

The houses of the Techumtas Island site were slightly smaller than those at Cold Springs; the latter averaged 30 feet by 28 feet, and the Techumtas Island houses averaged 28 feet by 26 feet. At both sites the longer axis of the house normally was parallel to the river. Furthermore, at both sites there was a dual division of the village into two parts with the smaller group at the upstream end of the site. Naturally, it was disappointing not to recover information on the type or types of superstructures employed at the site, but such data were not to be found. It is almost certain that the superstructures were of light flimsy materials such as poles and mats.

The midden trash at the Techumtas Island site was thin and unevenly distributed. It would appear that since the occupation was a relatively short one, trash had not accumulated to any extent on the terrace. The over-the-bank dump, being subject to stream erosion, was not permitted to accumulate. However, the heavier artifacts were not readily swept away, and some collections were made on the surface of the bank immediately below the house pits. These will be treated in the discussion of material culture.

MATERIAL CULTURE

It was hoped that significant differences could be found between the artifact collections associated with the two floor levels in house pit 14. Unfortunately, they were not apparent. The lower floor had 12 artifacts associated with it, and 6 of these were unaltered spalls that had probably been used for cutting and scraping. Also found at this level were a small cobble chopper, two crude flake scrapers, and a notched net sinker.

On the upper or most recent floor, 22 artifacts were recovered. Six of them were unaltered spall flakes, and eight others were crude flake scrapers. Only two of the scrapers had been prepared for use; the others were primary flakes. Four projectile points came from the upper floor (pl. 37, *a*). Three of them were side notched with concave bases and averaged 20 mm. in length. The fourth, simply triangular with a straight base, was 31 mm. long. There were also three complete bone awls on or near the floor, each awl a different type (pl. 37, *a*). One was made from a long bone of deer. It tapered slightly, and had a conical point much like that of a sharpened pencil. Another was made of a scapula spine, probably of deer, and was similarly pointed. The third, much smaller, was made from a deer fibula, and tapered smoothly to a point. The first awl described above was finished along the shaft and had a small hole about 3 mm. in diameter drilled through the shaft near the butt. The others had been only slightly smoothed along the shaft.

The last item from house pit 14 was a typical chipped stone fetish similar in size and shape to the one described for the late Cold Springs occupation (pl. 37, *a*).

House pit 15 had six artifacts associated with the single floor. They included two rough cobble choppers and a cobble hammer, all of basalt. A tip of a bone tool and a thumbnail scraper were also associated with the house. One small glass trade bead was recovered near the floor of house pit 15. It was of the tubular type that is believed to be early in the region. Although there is always the possibility that it could be intrusive (via a gopher hole), it suggests a late precontact date for the house. The other artifacts at the site, small points and fetishes, would tend to confirm this dating.

A number of artifacts were found in the midden trash adjacent to the houses. One test section just south of house pit 9 uncovered what may have been a cache of fishing equipment. However, the 18 notched net weights and 1 grooved weight were in no particular order, and were associated with a quantity of discarded mussel shells and some fire-cracked rocks. Also associated with the group were two cobble hammers, a cobble chopper, and a spade-shaped stone, which may have been a boring tool. This flat basalt tool is unique in the region. All of the artifacts were closely associated on a single level less than 1 foot below the surface.

Tests on the bank between the houses and the river produced very little. Artifacts recovered included a small triangular projectile point, a thumbnail scraper, a stone fetish, and a few hammers and choppers. Although there was some stratification in the trash, the cultural materials recovered were far too few for any conclusions to be drawn.

Two years after the excavations were made on Techumtas Island, there was new erosion of the bank immediately below the lower group of houses. The river swept away the sand, but dropped the larger stones almost in place. The artifacts collected from the surface there almost certainly belonged to the over-the-bank dump from the houses, and should be considered part of the complex. This group of artifacts included nearly 100 notched net weights and 6 ovoid grooved net weights. There were about 40 discoid choppers and 60 spall flakes, as well as 12 or more cobble hammers and choppers. Three stone fetishes were also found on the eroded surface.

All of the above were artifact types that matched those found in the houses. There were a few artifacts in the surface collection that did not duplicate those from in or near the house pits. They included a miniature stone mallet, 3½ inches (9 cm.) in height, and part of a full-sized mallet. The former, which may have been a toy, is similar to, but smaller than, those illustrated in plate 42, *b*. Two small projectile points found there were corner notched with straight stems.

This is the first appearance of the stone mallet in the local sequence. Mallets, or mauls as they are sometimes called, are among the most carefully made artifacts in the region. Ground and polished from basalt, porphyry, and diorite, these tools are about the size and shape of a milk bottle with the handle often suggesting a phallic symbol. The earliest mention of mallets in the literature is from the Lewis and Clark journals (Thwaites, 1904–5, vol. 3). When these explorers were on their way to the coast in 1805, Clark visited a village near the juncture of the Snake and Columbia Rivers. He reported seeing a stone mallet used in conjunction with an antler wedge for splitting timber. His description makes it clear that the artifact was of the type being discussed here. Fine ground mallets have been reported from The Dalles, Oreg. (Strong et al., 1930), from the upper Columbia (Collier et al., 1942), and from the Yakima River (Smith, 1910).

The small, rather delicate, corner-notched projectile point becomes the typical one for the historical period. How much earlier than that it occurs is difficult to say, but corner-notched points appear in quantity in sites that have no European trade goods.

ECONOMY

Most of the tools that could be assigned to a particular economic pursuit were obviously designed for fishing. The large number of net weights in and around the houses attested to a considerable reliance on fishing, as did the number of fishbones. Animal bones included those of deer, rabbit, various birds, antelope (*Antilocapra americana*), bison, but no horse (Osborne, 1953, p. 261). Projectile points were present although not really plentiful, but there was no direct evidence of vegetable foods. Shellfish were apparently consumed in quantity, although not to the extent that was evident at Cold Springs (35–UM–7).

SITE 45–BN–53

This large village site was excavated by Douglas Osborne in 1948, and was reported in full in his doctoral dissertation.[5] It was not a large or a lengthy excavation, and not many diagnostic artifacts were recovered. Because of these things only a brief summary of the results is presented here.

One of the largest villages anywhere in the middle Columbia region, 45–BN–53 was situated on a long flat terrace about 5½ miles upstream

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[5] See footnote 3, p. 164.

(east) of the McNary Dam (map 2). The terrace is on a semidetached island on the north (Washington) side of the Columbia River and is nearly opposite the Hat Creek site. The local physiography is almost identical with that of Techumtas Island—sandy loess soil, steep shingle beach, and some shifting sand dunes.

ARCHITECTURE

The village itself was approximately 300 yards long, parallel to the river, and 35 yards wide. It consisted of 182 houses or house depressions. Since only a few were excavated, almost nothing can be said about the relative ages of the houses or the duration of the occupation. The evidence tends to indicate that it did not extend over a long period of time, but that evidence is not conclusive.

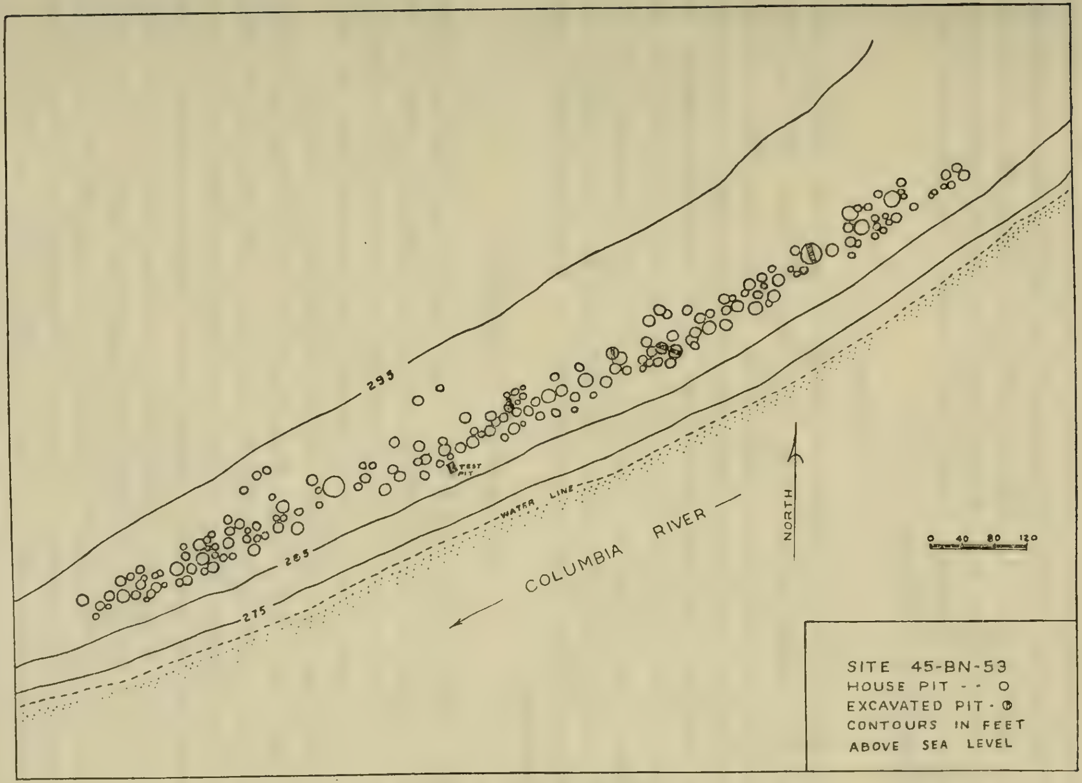
The house pits of various sizes were scattered along the terrace in no particular pattern. No streets or significant groupings of houses could be detected, although some information might be forthcoming if the ages of most of the houses were known. (Map 5.)

Six of the house pits at 45–BN–53 were excavated or trenched. Houses Nos. 11, 49, 70, and 168 were completely excavated, while Nos. 52 and 169 were only trenched. The results of the excavations were nearly identical to those at Cold Springs and Techumtas Island. Occupation levels were found, but no postholes or traces of superstructure could be detected. East-west diameters were generally greater than north-south diameters, making the long axis in line with the prevailing wind. Median diameters were north-south, 16 feet, and east-west, 19 feet. These are smaller than the averages for the houses at Techumtas Island and Cold Springs.

Generally, there were several occupational levels in each house, and apparently the houses were not cleaned out from one occupation to the next. Fireplaces were usually in the center of the saucer-shaped floors. They were informal fireplaces, a few rocks and a concentration of charcoal and ash. Entrances were not detected, and the only trace of building material was in the form of mat fragments found on the floor. Occasionally pairs of houses were side by side so as to suggest contemporaneity, but the poor preservation of floors and structural details prevents their reconstruction.

MATERIAL CULTURE

Most of the work at 45–BN–53 was concerned with the excavation of house pits. About 12 working days with a crew of 12 men were spent at the site, so the list of materials recovered is small. Of the 209 artifacts recovered, 129 were of the large coarse type such as hammers, choppers, or net weights. The others were so similar to the materials from Techumtas Island (35–UM–17) that there is little


295
285
275
TEST PIT
WATER LINE
COLUMBIA RIVER
NORTH
0 40 80 120
SITE 45-BN-53
HOUSE PIT - - ○
EXCAVATED PIT · ◐
CONTOURS IN FEET
ABOVE SEA LEVEL

Map 5.—Site 45-BN-53.

reason to go into detailed description. They included projectile points, awls, scrapers, and drills. Although no trade goods of European origin were found in the houses, a few glass beads were uncovered in the midden tests. This is, of course, no proof that the site should be dated by these finds. Later utilization of the terrace could have been responsible for the occurrence of the trade beads. However, the material culture, especially the small projectile points, strongly suggests that the site was occupied during the late prehistoric period. Trade beads might have found their way into the area as early as 1740 or 1750. Osborne (1953, p. 263) would date the site as early 18th century at the latest.

ECONOMY

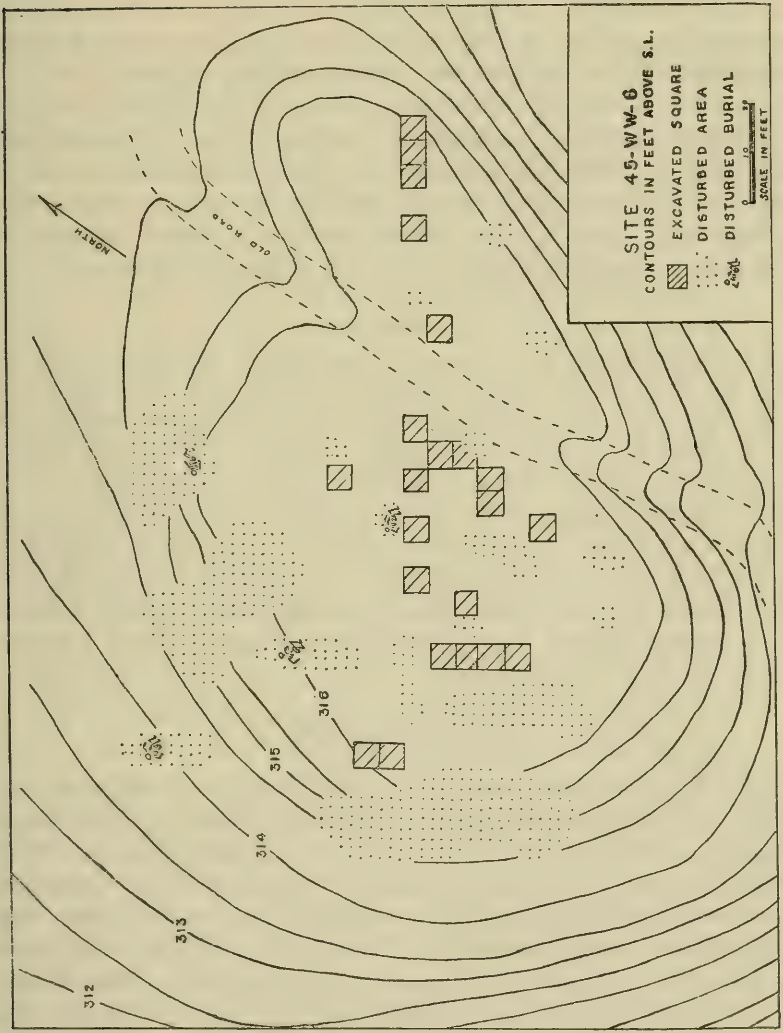
Among the animal bones recovered at 45–BN–53 were those of deer, elk, rabbit, various birds, dog, fish, and bison (ibid., p. 261). Horse and antelope bones were absent. Fishbones were not as numerous as one might have expected, and suckers were more common than salmon. The horse was absent in all precontact sites in this region; it was not found at Techumtas Island (35–UM–17), a site believed to be contemporaneous with 45–BN–53. The economy, therefore, was apparently identical with that described for site 35–UM–17. Hunting, fishing, and gathering seem to have had nearly equal importance.

SITE 45–WW–6 (WALLULA)

The Wallula site (45–WW–6) was located at the confluence of the Walla Walla and Columbia Rivers, in the southeast corner of the State of Washington. The village was built on a slight elevation about 50 yards from the east bank of the Columbia, and the same distance from the north bank of the Walla Walla. (Map 6.)

About a mile downstream from the Walla Walla River the Columbia flows through a considerable gorge, the result of cutting through the Horse Heaven Hills. Local tradition has it that the hills once dammed a deep lake within what is now a large open valley. Thousands of years ago, the water burst the natural dam, cut the gorge and drained the lake, all according to local "authorities." How much of this is based on scientific examination of the geological facts it was not possible to ascertain. At any rate, the broad flat valley is there and supports the small cities of Pasco, Kennewick, and Hanford.

The site itself was approximately 200 feet long and perhaps 60 to 80 feet wide. The subsurface material was coarse river gravel, with a 2- or 3-foot layer of yellowish sand on top of the gravel. The midden was about 3 feet in depth near the center of the site, and rested directly on the sterile sand. Toward the edges of the site the ground sloped away gradually, and the midden thinned out proportionally.


SITE 45-WW-6
CONTOURS IN FEET ABOVE S.L.
EXCAVATED SQUARE
DISTURBED AREA
DISTURBED BURIAL
0 10 20
SCALE IN FEET
NORTH
OLD ROAD
316
315
314
313
312

Map 6.—Site 45-WW-6.

Pot hunting has created a great deal of damage at the Wallula site. At least one-third of the surface has been potted, and no fewer than four burials were robbed. The latter expression is appropriate in this case, for only the crania and long bones were taken, along with most of the artifacts. Screening in the irregular disturbed areas recovered vast quantities of beads and small human bones. Unfortunately, the excavations carried on during the 2 weeks that River Basin Surveys spent on the site did not uncover a single undisturbed burial.

In spite of the beliefs of the local residents, the Wallula site was not primarily a burial ground but a fishing village of the late prehistoric and early historic periods. In some places the soil was black, almost greasy, with charcoal, and salmon vertebrae were present in vast numbers. Most of the artifacts were utilitarian, and the 500 square feet of surface excavated yielded only midden trash.

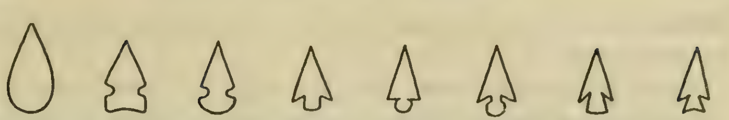
ARCHITECTURE

Site 45-WW-6 was subject to spring floods. In May 1950, the writer was forced by a normal spring flood to abandon work on the site and move out. Surface erosion was evident over all of the site, and it is believed that traces of houses had been obliterated. If the Wallula site had been a summer fishing village, the surface mat house (to be described later) would have been used. The slight depression left by a summer mat house would be erased quickly by flood erosion. Large areas of charcoal were found all through the midden, but none of them conformed to a house floor. Therefore, no definite information was obtained on architecture.

MATERIAL CULTURE

Projectile points were numerous at 45-WW-6 in spite of other indications that it was primarily a fishing village. Out of 70 specimens recovered, 48 were sufficiently intact to permit classification (pl. 38, *a*). Most of the points were small, between 18 mm. and 27 mm. in length, and were barbed. Nine specimens were of a simple leaf shape with rounded bases. They were similar in outline to the projectile points from the Hat Creek site, but were generally smaller. They lacked the serrated edges and were not planoconvex in cross section. The accompanying chart gives the distribution according to types set up by Strong, Schenck, and Steward (1930, p. 78).

The small stemmed and barbed projectile points are typical of the late prehistoric and early historic periods all over the Plateau. Those at the Wallula site were made of petrified wood (17 specimens), basalt (12 specimens), agate (9 specimens), and jasper (5 specimens). Only two projectile points were made of obsidian.



Type:	NAb1	NBb2	NBc	SBb	SCa1	SCb1	SCb2	SCb3
No:	9	1	1	13	1	15	7	1

There is nearly always room for argument over whether certain chipped tools are to be called projectile points or knives. At the present time there is no way of being certain about some specimens. With the materials from the Wallula site there seemed to be a preference for small barbed points. Others were leaf shaped and small, and some were intermediate in size. There were still others, five in number, that were considerably larger and heavier, and in this case have been called knives. Ten more blades were of shapes that have not been associated with projectile points, but have been found (at 45–BN–3) with knife handles still intact. All 10 of these knives are variations of a lozenge shape with straight, concave, or convex bases. The materials included basalt (7 specimens), petrified wood (6 specimens), agate (1 specimen), and jasper (1 specimen). Blades similar to the lozenge-shaped knives were found in north-central Oregon, by L. S. Cressman. He said in referring to his specimens:

> I believe these latter to be end scrapers on the basis of experience in classifying numerous similar specimens in early collections for The Dalles region of the Columbia River. Microscopic examination showed pitch on the sides of the contracted portion, obviously evidence of hafting. [Cressman, 1950, p. 378.]

Cressman's explanation may be correct, but the specimens from 45–BN–3 were hafted with the pointed end exposed for use. There is no reason why a tool of this sort might not be used either way.

Flake scrapers found at the Wallula site were not significantly different from those described earlier. They were of essentially the same materials as the projectile points, and there was no attempt at shaping. A few of the flakes may have been deliberately removed, but the majority are the result of having been used for scraping. The 22 specimens recovered at the site are primary flakes, with an average diameter of about 3 cm.

Spall scrapers, which were abundant at the Techumtas Island site (35–UM–17), were represented at the Wallula site by only four specimens. These tools are almost always made of quartzite, perhaps because the quartzite cobbles in the Columbia River tend to have such well-defined cleavage planes. The spalls are always thin, having one surface which is weathered and one which is the cleavage plane. The edges usually show some crumbled battering. It is likely that the spall was a sort of general utility artifact, easy to make, handy to use, and expendable. The same was probably true of the other chopping and hammering tools.

Stone weights for seines and nets were abundant in the midden, on the surface, and on the gravel beach of the Columbia River (pl. 41, *b*). The description of the 2-notched stone weight given for those from the Cold Springs site holds perfectly well for 31 specimens excavated at the Wallula site. A variation on the type makes its appearance there with 18 specimens that have 4 notches instead of 2. These quadrilaterally notched weights are about 25 percent longer and wider than the laterally notched variety, but otherwise do not differ significantly. No evidence could be found to show that either variety was stratigraphically older than the other, for both were randomly distributed through the midden. There does seem to be a proportional increase in the 4-notched variety as one proceeds upstream from the McNary Dam.

Girdled net weights were made by pecking a shallow groove around the smallest diameter of a large ovate river cobble (pl. 41, *b*, center). Granite porphyry and quartzite were preferred or at least were readily available in the river gravel. The three grooved weights from the midden averaged 16 cm. in length and 13 cm. in width.

Coarse stone tools such as hammers and choppers were particularly abundant all over the region, and certainly no less so at Wallula (pl. 40, *b*). Of the 78 specimens that had been used for hammering, 34 had been intended for use as hammers only. The remaining 44 hammers had originally been chopping tools which, after becoming dull, were used as hammers. As explained earlier, these basalt river cobbles were roughly flaked to a single edge for chopping tools, or used without alteration for hammers. Twenty-six cobble choppers saw no subsequent use as hammers, and were discarded with no further alteration. All the cobble tools were apparently fashioned for use without hafting. No grooves or other hafting devices were employed.

The discoid chopping tools, flat river-worn pebbles with chipped edges, were represented by 38 specimens (pl. 40, *a*). A trial division of these tools into four subtypes seems to be justified, for there is no gradation or overlapping in the division. The simplest, and incidently the smallest, subtype is chipped on one edge, and the bit takes up approximately one-fourth of the circumference. Another, slightly larger, has bits of the same size on opposite sides. A third, still larger, is chipped three-quarters of the way around the circumference, and the last is chipped all of the way around. The gross size of each tool is thus directly proportional to the amount of the bit or cutting edge. It is perhaps significant that discoid choppers are often associated with notched net weights, suggesting some use in the fishing complex.

Two problematical objects that were recovered in the midden could have been used as adzes or hoes (pl. 41, *a*). They were flaked from basalt spalls of exfoliation and utilized the plane surface of exfoliation (or perhaps frost wedging) as one side of the tool. By rough percussion flaking from the flat side, a planoconvex tool with an outline like that of an ax blade was formed. The broad end of the tool was retouched and quite sharp, but the sides of the tool were blunted. If the tool were hafted by lashing a T-shaped handle to the flat side, the blunted edges would lessen the chance of the lashings being cut during use, and there are slight polished areas on the surface where the lashings might be expected to cross. One of the tools is 22.8 cm. long and 9 cm. wide, and the other is 21 cm. long and 8.6 cm. wide. Such a tool would be most useful in hollowing out canoes, in digging houses and graves, and perhaps for other purposes. Nearly identical tools have been found in the region during surface surveys, and one was found associated with the late occupation of the Cold Springs site.

Two smaller basalt artifacts were probably used as wedges. One had been prepared by striking two long flakes from a more or less cylindrical pebble, and the other was a basalt fragment whose planes of frost wedging created a natural wedge. Both had been battered at the blunt end. The chipped specimen is 5.1 cm. long and 2.2 cm. wide, while the other is 11.8 cm. long and 5 cm. wide.

Occasionally some of the large river cobbles were used as lapstones or anvils. The two stones used in this manner at the Wallula site were river-worn cobbles of granite porphyry, each about 24 cm. in diameter and 10 cm. thick. The battered surface was in the center of one of the nearly flat sides and perhaps 6 cm. in diameter. Had the battering scars not been in the form of sharp pits, these objects might have been called mortars. One of the anvils had been flaked to a rough cutting edge over a third of its diameter in the manner of the cobble choppers. The heavy 2-handed chopper may have been made before or after its use as an anvil; it was not possible to determine which took precedence.

There were two types of chipped stone drill bits found at the Wallula site, but only one representative of each type. One of these is long (3.3 cm. without the tip) and slender (9 mm. in diameter). In cross section it is oval, almost circular. The other type is shaped like an automobile key, having a broad rounded base with a sharp bit. The basal diameter is 2.1 cm., but the tip of the point is missing. Both types were probably hafted, but it would be entirely possible to use the "key" type unhafted. No data are available on whether a bow was used with a hafted drill bit or the shaft was twirled between the hands.

Objects made of ground and polished stone are rarely found in midden deposits in the McNary region. Those recovered there are usually fragmentary. We were fortunate in recovering six such artifacts at the Wallula site, even though five of the six were broken and incomplete. Two fragments of basalt pestles that were found consisted of the blunt grinding ends only. They had been pecked to shape but worked only to a fair polish. A third specimen was complete but of poor workmanship. It had been pecked to shape but the pecking scars had not been polished away. The length was 18.3 cm., the diameter was 6.4 cm., and it tapered slightly. Another pestle, not classed as ground stone, was a long cylindrical river stone of basalt that had been used with no alteration.

Two fragments of stone bowls were in the midden deposit. Though not part of the same bowl, the two pieces are of nearly the same size and shape, each being about one-quarter of the original specimen. One would have had an outside diameter from 14 to 16 cm., and the other from 13 to 15 cm. Overall height of each would have been approximately 7 cm. Both bowls had been hollowed out of river cobbles, one of quartzitic sandstone and the other of granite. The interiors were exceptionally well smoothed, and the bases were flattened for stability. One of the bowl fragments was in close association with several cobble hammers and one of the pestle fragments.

Only one fragment of a stone pipe was found at Wallula, and it was a part of the bowl of a two-piece type. This type consists of a parabolic bowl with a female flange fitting for the insertion of the stem. The stem is in line with the pipe, so that it is merely a variation of the regular tubular type. The specimen recovered in the midden was of dark gray talc schist, well polished, but too fragmentary for measurement. Several pipes of this kind were found on Sheep Island by Garth (1952 b) in 1950.

Altogether, 34 artifacts of bone and antler were recovered at 45–WW–6. As with nearly every class of artifacts that is represented in the area, many of these tools are generalized, and one can only speculate as to their use or uses. Nevertheless, they have been divided tentatively into six categories: wedges, bone awls, flaking tools, bone projectile points, needles, and dice.

The wedges, eight in number, are all of deer or elk antler (pl. 39, *b*). The antler, in most cases, was split longitudinally; it was ground and polished to a rounded bit at one end and had a blunt striking surface at the other. Wedges of this sort, as previously mentioned, were observed in use and described by Lewis and Clark in October 1805 (Thwaites, 1904–5, vol. 3), a few miles from 45–WW–6. They were used in conjunction with stone mauls for splitting timber. All but one of the Wallula wedges are flat in cross section and have oval bits. The exception is round in cross section with a pointed rather than a flat bit. Antler, especially the cancellous tissue, is extremely susceptible to decay, and for this reason, many of the specimens are not complete. The average wedge appears to have been between 8 cm. and 12 cm. long and between 2 cm. and 4.5 cm. at the maximum width. A considerable variation can be noted in the quality of workmanship in that some of the wedges are well made and polished while others are exceedingly rough.

Within the class of bone awls there is no end of variation (pl. 39, *a*). Some are almost certainly awls; others may have had another use. Some are carefully shaped and polished, while others are only abraded at the tip. There seems to be little point in going into the individual details of all the specimens, since no two are really identical. It should be pointed out that besides the variation in shape and size a number of materials were used. Awls were made from various bones of deer: scapula, fibula, and metacarpal or metatarsal. Deer ribs and one of the long bones of a large bird were also used. Thirteen specimens of awls were recovered, and less than half of them could be considered well made.

Flaking tools were presumably used in flaking projectile points, knives, scrapers, and drills. Two of them were tines of deer antler showing wear at the tip; the third flaker was fragmentary and of bone. Only the tip remained, but it approximated the antler tines in shape and wear.

The three bone artifacts that had been classified as bone projectile points were all approximately the same size: 55 mm. to 58 mm. long, and 8 mm. to 10 mm. wide. One of the group was but a slightly abraded bone sliver that was keenly pointed at one end and beveled at the other. The other two were more carefully fashioned and were quite symmetrical (pl. 39, *a*). In cross section they were rectangular with only a slight beveling of the edges. These points had been ground all over with a rough abrasive such as scoria or sandstone but had not been polished. It would be possible to mistake them for flaking tools except that the tips show no greater degree of abrasion or wear than do the shafts. While they may be spear tines, there is no apparent way for them to be hafted. Bone points or the trident fish spear usually show beveling near the base in order to facilitate hafting. Since these points were apparently constructed to be hafted singly, they have been classified as projectile points.

In the use of the term "needle" to describe the four long slender artifacts of bone, it is not meant to imply that they were necessarily employed in sewing. The two specimens that were complete had no eyes, nor was there any direct evidence that eyed needles were used at the site. These tools were simply too long, slender, and fragile to have been used as ordinary awls (pl. 39, *a*). It is suggested that they may have been employed in constructing twilled or coiled basketry, twilled mats, and in making small perforations in hides. Since the average width is but 5 mm. and the average thickness only 3 mm., rough usage would result in breakage. The complete specimens probably averaged over 8 cm. in length.

One incomplete specimen, carved and polished from deer or elk antler, is obviously a gambling device. Its outline is a symmetrical long slender ellipse, and it is also elliptical in cross section. One surface is smooth and plain, while the other is covered with an estimated number of 18 small shallow pits that were drilled into the surface. It is estimated that the die had an original length of 8.5 cm. and a width of 2 cm.

The only ornaments of non-European manufacture that could be found were two small shell beads. One of these was a short section of *Dentalium* from the Pacific Ocean; the other was a small disk from river mussel shell and drilled slightly off center. Because of their small size, both of these ornaments could have been lost during the occupation. They were not associated with the late burials in the site.

The European trade goods were restricted to a depth of only 1 foot below the surface. The other 2½ to 3 feet apparently dated from precontact times. Of the four glass beads found in the midden, three were of the cylindrical type that is believed to be the earliest in the region. The other was shaped like a doughnut and was identical with those beads found in the burials and those recovered in the ruins of Fort Walla Walla (Garth, 1952 b). There were two bits of sheet copper, one an irregular flat fragment and the other a rolled tubular bead. Another copper object is believed to be a stud used for joining leather harness of some sort. The last item of European origin was a broken fragment of a clay pipestem.

The small assortment of trade goods is nevertheless significant, since it is highly indicative of a time relationship with site 45–BN–3 on Berrian's Island. The aboriginal artifacts are also very similar.

BURIAL CUSTOMS

The burials at the Wallula site constitute a minor problem. Their presence, before being robbed, was clear because of the numbers of small human bones and ornaments left behind. About all there is on which to speculate is the large collection of glass and porcelain beads that was salvaged. The group of beads differs considerably from those found in the graves at 45–BN–3. The latter were nearly all blue and white, the blue beads constituting 64 percent of the total. Most of them were of cylindrical shape, although there was considerable variation. Site 45–BN–3 and its trade material is believed to date from the middle and late 1700's and possibly in the early 1800's (Osborne.[6] The dating appears to be upheld by the Wallula site where the earliest trade goods are identical to those from Berrian's Island.

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[6] See footnote 3, p. 164.

The beads from the burials at Wallula are nearly all of the doughnut shape. About 50 percent are white, and the rest nearly equally divided between black, blue, green, yellow, red, and pink. The best chance of a date comes from Fort Walla Walla which was established in 1818.

ECONOMY

The midden at the Wallula site contained more animal and fish bones than any of the sites described so far. Most of the bones were salmon vertebrae, but bones of deer and elk were numerous. Since no complete analysis of the animal bones has been made, nothing more can be said of that phase of the economy. The presence of pestles and stone bowls suggests that vegetable foods such as seeds and berries may have been prepared by grinding. Gathering is known to have been important in historic times, and was probably no less so at Wallula.

HISTORICAL DATA

The Wallula site is the first of the series under discussion that can be related to historical events. Therefore an attempt will be made to date the site by use of early journals.

In October 1805, Lewis and Clark left the mouth of the Snake River, and proceeded down the Columbia by boat. They mentioned Indian camps on the islands and on the mainland, but at the mouth of the Walla Walla River, they noticed only a "small rivulet" (Thwaites, 1904–5, vol. 3, p. 131). Had lodges been there at the time, Lewis and Clark could have hardly missed seeing them.

On April 29, 1806, Lewis and Clark landed at the confluence of the Walla Walla and the Columbia, and proceeded about a mile up the north bank of the former. They wrote, "There are twelve other lodges on this river a little distance below our camp" (ibid., p. 337).

This may have been an occupation of the Wallula site, for in the first mile upstream from the Columbia River only the Wallula site is a suitable camping spot. From these data we can imply that the site was not occupied in October 1805, but that it may have been used the following April. In October 1805, when Lewis and Clark first reached the Columbia River, they remarked that the Indians wore quantities of bright blue and white beads, copper, and brass. From these data, we may speculate that the Wallula site had ceased to be a permanent village by the time Lewis and Clark came by.

If the Wallula site was a seasonal camp, the vast quantity of fish bones and fishing equipment in the midden would indicate that it was a fishing camp and should have been occupied during the summer and fall. Furthermore, the shortage of European trade goods in the midden seems to prove that it was not a permanent village in 1806 and thereafter.

In 1812, Robert Stuart mentioned the Walla Walla River. "On this stream and its neighborhood live the nation from whom it derives its name" (Rollins, 1935, p. 62). Stuart, however, did not specifically mention the mouth of the Walla Walla.

Fort Nez Percé (later called Fort Walla Walla) was built in 1818 on the east bank of the Columbia River about 500 yards north of the Wallula site. It was a trading post surrounded by a stockade and protected by a company of armed men. Some years after he was in command of Fort Nez Percé, Alexander Ross wrote an excellent account of life at the post. He tells that by 1818 the Indians had guns and horses, iron knives, and all sorts of trade goods. Most of these had been acquired after 1805, for Lewis had reported the Indians to be terrified at the sound of a gunshot. Ross mentioned that the nearby territory belonged to the Cayuse and the Walla Walla tribes, but he did not mention a permanent village at the mouth of the Walla Walla River.

By 1818, the Indians were probably using part of the Wallula site as a burial ground. The beads found in the graves are of bright-colored porcelain, and are identical with beads found in the excavation of Fort Walla Walla by the National Park Service (Caywood, 1951, personal communication). In view of the evidence cited earlier from Lewis and Clark, it would seem that the bodies were interred some 15 years after the site was no longer being occupied.

SITE 45–BN–3 (BERRIAN'S ISLAND)

Site 45–BN–3, on Berrian's Island, was about 5 miles east of McNary Dam and opposite a point equidistant between 35–UM–3 and 35–UM–5. Berrian's Island was separated from the north bank of the river by a narrow channel, and the site was located at the downstream end of the island facing the main channel on the river. The site was used for both habitation and burial, the latter being the most important use as judged on the basis of few signs of habitations and many burials.

ARCHITECTURE

The owner of the property on which the site was located reported that there had been three or four house pits on a slight ridge just north of the burial area. However, during the spring flood of 1948, these pits were washed away or covered up. Test pits in that vicinity failed to uncover any sign of houses. Occupational debris was found on the western side of the burial area, but no houses were detected.

MATERIAL CULTURE

The archeology of the site had been reported in detail by Douglas Osborne, who was in charge of the excavation. The present discussion, therefore, will be limited to such a description of the material culture as reported by Osborne [7] and by use of field notes.

Some trenching was done in the thin midden area east of the main burial area, but little was found beyond a few glass and copper beads. The bulk of the artifacts came from the graves themselves, which were 52 in number.

A comparison of the artifacts from the graves at 45–BN–3 with those of other sites is difficult because of the difference in quality of the artifacts lost or discarded, and those used as burial furniture. The fine carved stone and bone, as well as most of the ornaments, usually found their way into graves. Crude stone tools such as hammers, choppers, and net weights were seldom found in the graves, but were very common in the midden trash. There was a little overlap in chipped-stone artifacts, and occasionally broken fragments of the better made artifacts were recovered in trash.

The projectile points from the graves were mainly of two general types, side notched and barbed (pl. 42, *a*). These points were very similar to those found in the late occupation at Cold Springs, at Techumtas Island, and the Wallula site. They were small, thin, and well made. Another type of blade, considerably larger, may have served as a projectile point or as a knife. This type graded from a simple triangular outline to that of a lozenge with a flat base. Whereas the small points, the notched and barbed type, varied around 2.5 cm. in length, the triangular blades varied around 4.0 cm. in length.

Several large knives were found (pl. 42, *a*). Five or six of them were between 5 and 7 inches long (12.5 to 17.5 cm.), and were in the form of a long slender triangle. The material (tabular petrified wood) and the workmanship were practically identical to that of the triangular blades described above. A few blades, about half a dozen, were leaf shaped with flat or rounded bases. Some of the larger blades were found with remnants of wooden handles still in place. Nearly all of the larger blades were made of petrified wood, while jasper, obsidian, and some petrified wood were used in making the small projectile points.

Three types of drill bits were used. A small one, of chipped stone, was pointed at both ends. Another type, long and slender, had a slight expansion at the base. A third was of the "key" type which was described for the Wallula site.

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[7] See footnote 3, p. 164.

Chipped-stone scrapers were not found in the graves. Those from the midden were of the usual primary flake type, showing more the results of having been used than having been deliberately prepared for use.

Nearly all of the coarse stone tools came from the midden area or were being washed out of the riverbank on the edge of the site. The list included hammers, choppers, and spall flakes as well as two-notched and four-notched net weights. The choppers were of the cobble as well as the discoid type, and four out of every five net weights were of the two-notch type. Net weights littered the gravel along the waterline the whole length of Berrian's Island as well as the island adjacent to it on which 45–BN–53 is situated.

Objects of ground and polished stone were frequently placed in the graves. The large stone mallets which have been described earlier were among these (pl. 42, *b*). Four mallets were recovered, as were five long tapered pestles of diorite. The pestles were from 7 inches (18 cm.) to 15 inches (38 cm.) long. Since no stone mortars were found, it was assumed that mortars may have been made of wood. The pestles from the graves were better made and more finely polished than those found at the Wallula site.

Five stone pipes of soapstone (steatite) had been placed with the burials (pl. 43, *b*). Three of the five were of the tubular type, slightly restricted near the mouthpiece and flaring into a flanged mouthpiece. Another pipe had a bulbous bowl and a straight narrow stem without the flange. The last one, only 3.5 cm. long, had a foreshortened bowl and flange, and must have had a separate stem which fitted into it. All of the pipes were carefully made and exceptionally well polished. Three pipes were decorated with small notches around the mouthpiece; one had hatched triangles incised on the bowl.

Chipped-stone fetishes were not found in the graves, but were found in quantities on the eroded section of the midden and on the terrace just east of the burial area. There is every reason to believe that they are of the same age as the burials even though they were not found in the graves.

Antler wedges were represented by about six specimens (pl. 43, *a*). There were no significant differences between these and the wedges found at the Wallula site. The antler was split, ground to a chisel point at one end, and left blunt at the other. It is believed that these tools were used with the ground-stone mallets for splitting wood.

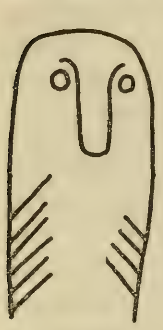
Bone awls were numerous in the graves, and several were of excellent workmanship (pl. 43, *a*). A number of awls were of the splinter type, unfinished except at the tip of the point, and made of split sections of long bone. One was made of a deer ulna with the proximal end used as a handle. At least three awls were finished and polished all over. They were round in cross section and tapered smoothly to a point. Classifying these three as awls is only a presumption, for they may have been hair ornaments. One or two bone tools had been used as flakers and were partially smoothed along the shaft. Other bones, principally the leg bones of large birds, had been cut off into cylindrical sections for use as beads. They were of many sizes but averaged around 3.0 cm. in length and less than 1.0 cm. in diameter. Beads made from the hollow leg bones of birds were found at Hat Creek and Cold Springs and are considered typical ornaments in the region.

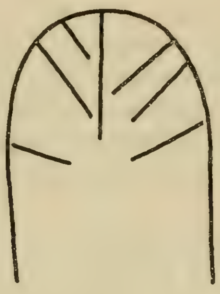
This brief description of the material culture covers those types of artifacts that have been found and described for the other McNary sites up to this point. The series of artifacts to be described next are typical of the burials at 45–BN–3, but are types that were not found in the other sites. It should be clearly understood that these are not necessarily unique at 45–BN–3, but were recovered there only because that site was a burial area. The same artifacts were probably part of the material culture assemblage at the Wallula site and other contemporary sites, but were not lost or discarded in the trash; at least they were not recovered in the excavations.

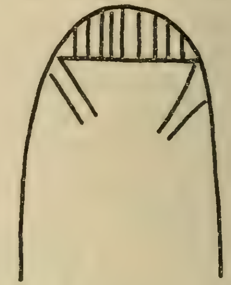
Several polished stone blades that were found in graves are believed to be celts or adz blades (pl. 43, *b*). They are flat and thin with the edges beveled from one or both sides. The material is a very dense nephrite which is greenish black in color. Excellent workmanship is exhibited in these tools, for the surfaces and beveled edges are well polished. In size these tools vary from 2 inches (5 cm.) in length and 1½ inches (4 cm.) in width, to 5 inches (14 cm.) in length and 2 inches (5 cm.) in width. Polished stone celts like these, without a hole or groove for hafting, have been found all along the Columbia River by collectors. A few of these were found during the acheological survey.

Other pieces of carved stone included a steatite ball about 4 cm. in diameter with a hole drilled through it (pl. 43, *b*, left center). It may have been an ornament, but it would have been a very heavy one to wear. Small disk beads were carved from steatite and had a single hole drilled through the center (pl. 15, third from the left). They were about 1 to 2 cm. in diameter. A spoon made of soapstone was made in effigy of a seashell (*Glycymeris* sp.), and the hinge served as the handle. A pendant, also of steatite, was made from the flanged mouthpiece of a tubular pipe. Apparently the pipe had been accidently broken, and the mouthpiece had been reworked into an ornament.

A new kind of fetish was found with the Berrian's Island burials. It was carved and polished from a piece of tabular slate (pl. 43, *b*, second from right). The designs incised on the fetishes are more easily pictured than described. Some of them are illustrated below.







In nearly all cases red ocher had been rubbed into the designs. Strangely enough, some of the chipped-stone fetishes had red ocher rubbed into the notch, and at a site (35–WS–5) near The Dalles, Oreg., a great many chipped-stone fetishes had been similarly treated. Some explanation should be forthcoming. It can be shown that no chipped-stone fetishes have been found in graves, and no polished-stone fetishes have been found outside of them. Perhaps the latter were reserved for burial furniture.

There were two kinds of sandstone shaft smoothers found in the graves (pl. 43, *b*). One was carefully made in block outline with a diagonal groove. This type was from 15 to 22 cm. long and was made of tuffaceous sandstone. The second type was made of fine sandstone, and was probably used by employing matched pairs and sliding the shaft between the two. The groove was parallel to the long axis, and this type was slightly smaller than the other.

Among the objects made of bone and antler were several artifacts that had not been found in other McNary sites. All of these things had been reported by ethnologists as being typical artifacts of the area, and most of them were seen by early travelers in the Plateau. The antler digging-stick handle is one of these (pl. 43, *a*). It is a curved tine with a hole bored through it at about the center. The digging stick was passed through the hole, so that the antler served as a sort of crutch handle. There is no explanation as to why an antler tine was used. Three such handles were recovered from the graves.

A bone fleshing tool, used for removing hair and flesh from hides, was made from a long bone of deer or elk. The handle was smoothed and one end was toothed like a small hand rake. Whistles were made from the wing bones of the Golden Eagle in the form of a straight tube with holes cut in the shaft (pl. 43, *a*, center). Numbers of teeth and claws were used as ornaments. Elk teeth were drilled for suspension in the manner of those worn by members of a large fraternal organization. Both the teeth and the claws of bears and wolves were used for ornaments.

Most of the shell at 45–BN–3 was of marine origin, and all of it was ornamental (pl. 45, center). Whole shells of the *Olivella biplacata* were strung into necklaces. Half shells of *Glycymeris* sp. were pierced at the hinge and worn as necklaces or bracelets. *Dentalium* sp. was strung whole or cut into sections, and some of the shells were incised. Disk beads were cut from various unidentified marine shells. Most of the shell pendants were made of *Haliotis* (abalone), cut into various shapes, and usually pierced for suspension. Apparently the only nonmarine shells used were those of the river mussel (*Margaritafera*), which were occasionally made into pendants but were generally too fragile for beads. All in all, shells were among the most numerous of objects recovered at the site.

In the case of many of the artifacts described earlier there may be some question as to use, but most of the ornaments were found in situ; that is, in association and positions that made their identification conclusive The burials were carefully excavated and the position of artifacts most carefully noted.

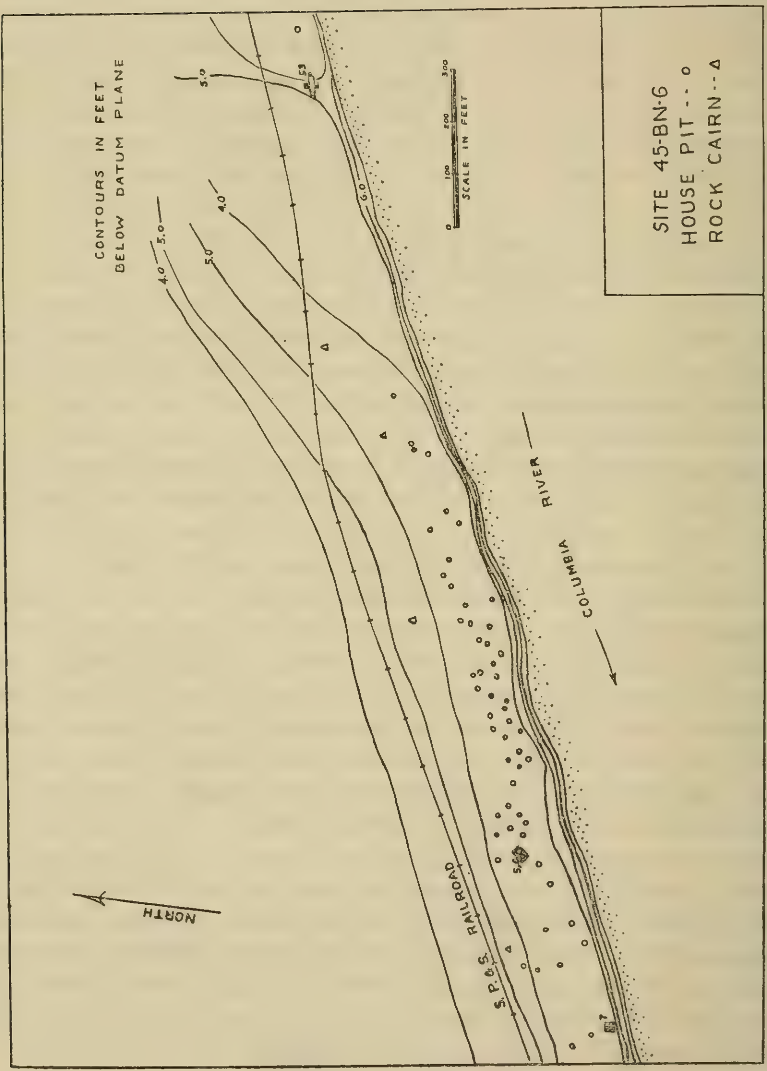
Vast quantities of trade goods of European origin were found in and around the burials. After good statistical samples of the glass beads were taken, no special effort was made to recover them all; they existed by tens of thousands (pl. 45, right). Since the glass beads were discussed earlier, no further mention need be made.

Nearly all the metal recovered was of rolled sheet copper, and was in the form of tubular beads or flat pendants (pl. 45, second from right). The copper was not all of the same gage, but every piece examined by metallurgists turned out to be of European manufacture. The beads were usually 4 to 5 mm. in diameter and from 1 to 7 cm. long. All sizes and shapes of pendants were found with various decorative holes and knobs punched into the metal.

Iron was apparently well known, but most of it was badly deteriorated. Identification was possible on a few knives, arrow points, and bracelets. Many other bits of iron were too rusted for classification. Several metal buttons that were found appear to have been from (or for use on) military uniforms. They were of brass, and were either flat or hemispherical. Other metal objects included a brass thimble, bits of silver, and fragments of pewter.

BURIAL CUSTOMS

Some of the graves were simple interments, others were in a plank-lined cist (pl. 44, *a*). The latter form is interesting. Apparently, the grave was dug and the mat-wrapped body deposited in it. Afterward the grave was lined with upright cedar planks about 4 inches


SITE 45-BN-6
HOUSE PIT - - o
ROCK CAIRN - - Δ
CONTOURS IN FEET BELOW DATUM PLANE
SCALE IN FEET
0
100
200
300
NORTH
S. P. & S. RAILROAD
COLUMBIA
RIVER
4.0
5.0
5.0
4.0
5.0
6.0
53
5
7

Map 7.—Site 45-BN-6.

wide and 1 or 2 inches thick. The grave was then filled in and the protruding planks were burned off level with the ground. In one burial glass beads and food had been thrown in the fire, presumably as an offering. Generally the bodies were flexed (pl. 44, *b*) or semiflexed, on the back or side, with the head oriented to the west (downstream).

ECONOMY

Most of the information that was recovered from site 45–BN–3 pertained to material culture and burial customs. While it is possible that a group large enough to be responsible for all the burials actually lived on the site, there is reason to believe that the site was not primarily residential.

SITE 45–BN–6

Directly across the Columbia River from Techumtas Island there is a long flat terrace. Site 45–BN–6, which was situated on the terrace, stretched along parallel to the river for one-half mile (map 7). The site was 9 miles east of the McNary Dam and 1 mile east of the small town of Mottinger, Wash. Except for being on the mainland instead of on an island, 45–BN–6 was very similar to site 45–BN–53. The house pits were scattered along the terrace at random with no apparent pattern. Basalt cliffs rose abruptly behind the houses, and the terrace fell off into the river with a steep bank and little or no beach.

ARCHITECTURE

The village included 59 semisubterranean pit houses and one long mat house. Besides testing for midden trash, three of the house pits and the mat house were excavated. Apparently the village trash was dumped into the river, for no midden worthy of the name could be found. Almost all of the artifacts came from the houses, as was the case at 45–BN–53.

The architecture at 45–BN–6 was little different from that described for other sites in the region. House pit 7 was more typical of the houses in the village. House pits 5 and 6 were possibly occupied at the same time and may have been a single house over two pits. House 59 was a very large mat lodge and the only one excavated by River Basin Surveys.

House pit 7 had been approximately 17 feet long and 15 feet wide (fig. 29). The remains of several floors were clearly discernible near the center of the house but faded out near the edges. As near as can be estimated, the subterranean portion of the house was approximately 2½ feet deep. Each of the floors was saucer shaped without abrupt walls at the sides of the house. There were three distinct occupational levels in the house, each marked by a black accumulation of charcoal

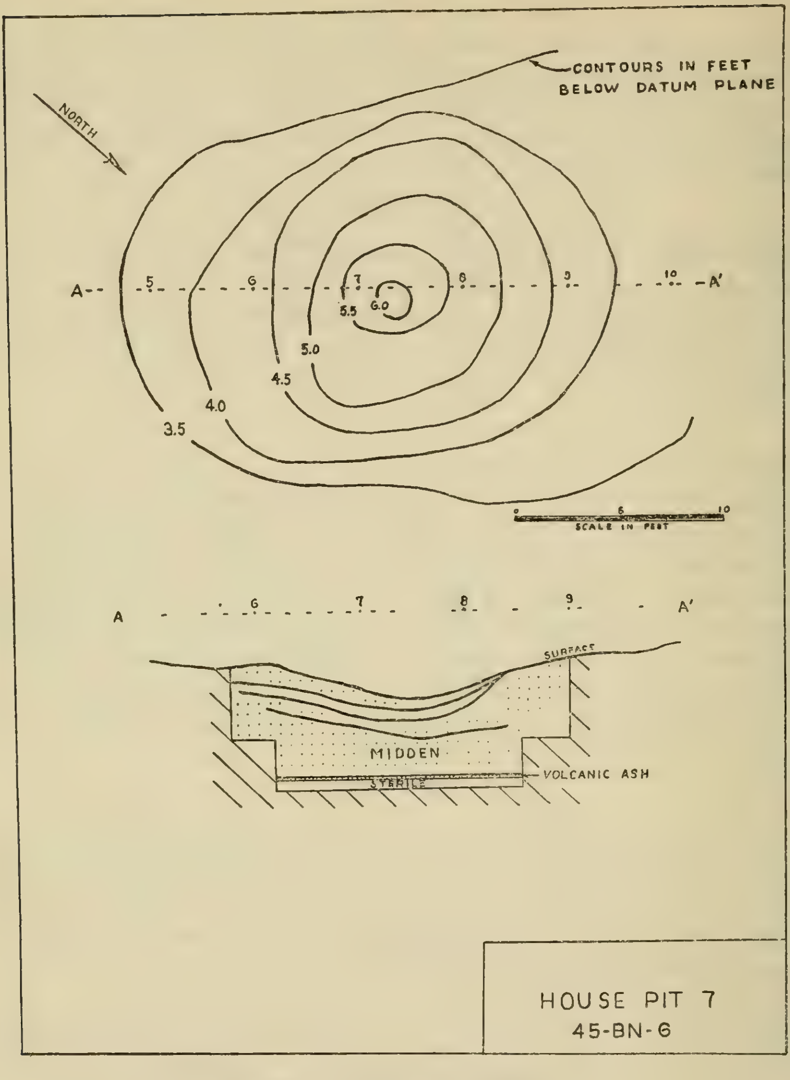

CONTOURS IN FEET BELOW DATUM PLANE
NORTH
A
5
6
7
8
9
10
A'
5.5
6.0
5.0
4.5
4.0
3.5
0
5
10
SCALE IN FEET
A
6
7
8
9
A'
SURFACE
MIDDEN
VOLCANIC ASH
STERILE
HOUSE PIT 7
45-BN-6

Figure 29.—House pit 7, 45–BN–6.

and ashes less than 1 inch in thickness. The floors were from 6 inches to 1 foot apart vertically, and each one more or less paralleled the others. The earliest floor had been built on a slight accumulation of trash that included a few animal bones, some charcoal, ashes, and flakes of stone.

Typical of houses in the McNary region, house pit 7 gave no indication of the kind of superstructure used. There were no postholes or remnants of construction materials. The side of the house nearest the river was slightly lower, indicating a possible entrance there, but there was no substantiating evidence.

Houses 5 and 6 were both considerably smaller than the average for the village or the region (fig. 30). House pit 6 was 13 feet long and 12½ feet wide, and house pit 5 was 16 feet by 12½ feet. The pits were tangent, and in neither pit was there evidence of backdirt from the construction of the other. This led to the belief that the two were occupied contemporaneously. The few artifacts found in the two houses showed no significant differences, but there is still no proof that they represented a single dwelling. No timbers or other evidence of superstructure were found, nor were postholes detected.

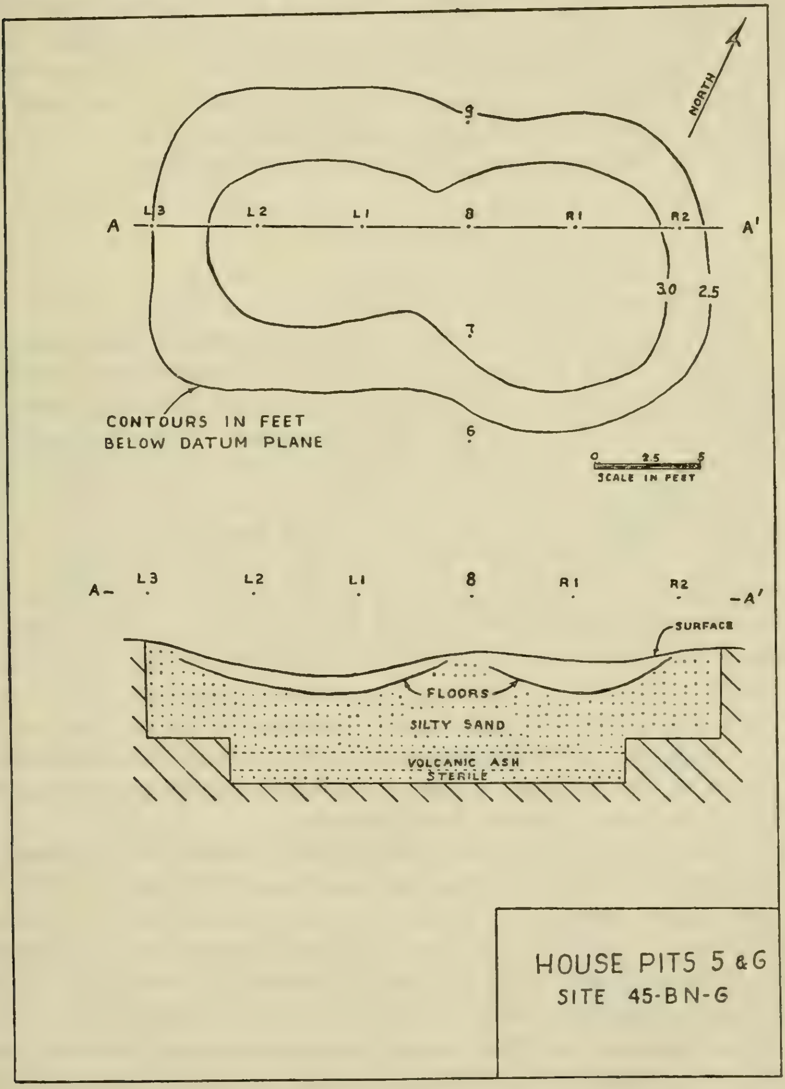

NORTH
A
L3
L2
L1
8
R1
R2
A'
9
3.0
2.5
7
6
CONTOURS IN FEET
BELOW DATUM PLANE
0
2.5
5
SCALE IN FEET
A–
L3
L2
L1
8
R1
R2
–A'
SURFACE
FLOORS
SILTY SAND
VOLCANIC ASH
STERILE
HOUSE PITS 5 & G
SITE 45-B N-G

FIGURE 30.—House pits 5 and 6, site 45–BN–6.

As in house pit 7, the side of house pit 6 nearest the river was lower, suggesting an entranceway there. None of the houses, 5, 6, or 7, were deep enough for a roof entrance to have been used.

House 59 was quite different from any other structure excavated in the McNary region. It was nearly 65 feet long and 16½ feet wide, in the form of a rectangle with rounded ends (pl. 46, *a*). The floor was less than 1 foot deep except where a small firepit had been dug into the floor. The dimensions of this house were almost identical to those of the multifamily units reported by Ray (1939, pp. 136 137), Lewis and Clark (Thwaites, 1904–5, vol. 3), and others for the historic period. Ray's informant reported that the mat lodge was usually 60 feet long and 16 feet wide, rectangular in floor plan with rounded ends. The superstructure was an inverted V section covered with mats, although there was often a gap in the roof, the length of the house, through which smoke might escape. Several families could live in each mat house, each with its own fireplace.

MATERIAL CULTURE

Although there were several occupations of houses 5, 6, and 7, the artifacts recovered from the various levels of occupation showed too few differences to suggest any change in the material culture. In house pits 5 and 6 the non-European artifacts were mostly cobble choppers and hammers. An awl made of wood, a thumbnail scraper, and two elk rib fleshing tools were also found. The fleshing tools were simply sections cut off a rib and used without special preparation.

In house pit 7 about the same kinds of materials were found. Besides cobble choppers and hammers, a crude bone awl and a notched net weight were recovered. House pit 59, the long mat house, was more productive. Twelve projectile points from the floor included three that were small and triangular, four that were small and corner notched, two that were side notched, and three broken unclassified points. These small projectile points made of obsidian, jasper, and petrified wood are typically those of the late prehistoric and early historic periods. A few flake scrapers and a hammerstone were also recovered in house pit 59, as was a basaltic pebble that appeared to have been used as an arrow-shaft polisher.

The assemblage of European trade goods associated with the houses was significantly different from that of either 45–BN3 or 45–WW–6. Instead of glass beads and copper, the trade goods included fragments of tin cups in house pits 5, 6 and 7; bits of glass, possibly window glass, in house pit 59; and a fragment of canvas in house pit 7. Other trade items included a large caliber rifle or pistol ball, a fragment of a square nail, and a horseshoe and a machine-made mother-of-pearl button. The horseshoe and button were in the fill of the houses and could represent a utilization of the site after the main occupation had ended. However, the general character of the assemblage of trade materials suggests that the houses were occupied after white men were living in the vicinity. There were four glass trade beads in house pit 59, and all were of the type found at Wallula, which are believed to be from Fort Walla Walla.

Scattered about the terrace were four or five piles of medium- to large-sized rocks. Excavation revealed nothing beneath them and no structure associated with them. Piling up rocks was one of a number of tasks given to boys who were in training for the spirit quest (Spier and Sapir, 1930). The custom was based on the idea that the spirit quest was not only a very serious affair, but one which required careful preparation. Thus, small boys were given tasks which were difficult as well as frightening in order to test their strength and their courage. They would be sent out alone on a dark night to some remote spot to leave some object or pile up stones to show that they had been there. This may be an explanation for the rock piles.

BURIAL CUSTOMS

Several test pits were excavated in the steep bank at the river's edge in hope of finding an over-the-bank dump. In one of the test pits, however, a complete burial was found. The remains were of a male somewhat over 50 years of age who had been interred without any burial furniture. All metrical measurements and morphological observations fell within the expected ranges, and no anomalies or pathological conditions could be seen. The teeth were in extremely poor condition, which would be expected for an individual of that age. Erosion of the bank also washed out a stone bowl that was practically identical with those recovered at the Wallula site.

ECONOMY

A complete analysis of the animal bones was not available at the time of this writing. Osborne, however, reported the presence of horse and bison bones in considerable numbers and the absence of antelope bones (Osborne, 1953, p. 262). Bones of fish and deer were recovered in quantity, as is usual in McNary sites. In addition to the bones, the artifacts showed that both hunting and fishing were important. Net weights and projectile points were found in the houses, and were eroding from the riverbank. Data on foods obtained by gathering are always difficult to recover and other than one stone bowl none were found at site 45–BN–6. The stone bowl may have been used as a small mortar for grinding seeds and berries.

Even though evidence of gathering was lacking, it is known from historical data that it supplied a large share of the food that was consumed.

HISTORICAL DATA

There is one historical reference that probably applies to site 45–BN–6. In 1812, Stuart was on his way up the Columbia River, and stopped at an Indian village to trade horses. His biographer placed this village just east of the town of Mottinger, Wash. (Rollins, 1935, p. 61). The location fits site 45–BN–6, for there are no other sites within 3 miles in either direction and 45–BN–6 is definitely postcontact. The horse bones found in the house pits offer further evidence that site 45–BN–6 was the village that Stuart visited.

SITE 45–BN–55 (SHEEP ISLAND)

Sheep Island is situated approximately one-half mile downstream from Techumtas Island and approximately one-fourth mile upstream from the Cold Springs site. The island is a large gravel bar about 300 yards long and 200 yards wide. Its size, of course, fluctuates with the height of the Columbia River. The downstream end of the island is considerably higher and has a sandy loam deposit stabilized by vegetation.

There have been two archeological investigations carried out on Sheep Island. The first of these was an excavation in 1949, sponsored by the Whitman College Museum and Department of History, and the fieldwork was done by Thomas R. Garth (1952 a, p. 348). The second excavation was by a River Basin Surveys crew in the summer of 1950, and was under the direction of Douglas Osborne. Garth's work brought to light two large cremation pits and several burials with a series of stone and bone artifacts associated with each of them. Osborne found a series of burials that were also stratigraphically older than the cremations. The burials unfortunately had no artifacts associated with them.

Since the excavation of the cremation pits was not done by River Basin Surveys crews, the associated materials were not available for comparison with materials from other McNary sites. The illustrations in Garth's publication do not show anything, however, that differs significantly from late prehistoric sites in the region (Garth, 1952 a, p. 348).

The stone materials included small delicate projectile points seemingly identical with those from site 45–WW–6 and lozenge-shaped knives similar to those from sites 45–BN–3 and 45–WW–6. A tubular stone pipe and several fragments of pestles were also found. Artifacts of bone included several small incised fragments of ornaments and a number of points of awls or needles.

Garth found 10 burials that were stratigraphically older than the cremations. Grave goods were found with six of the burials, but the majority of the artifacts accompanied just one of them. These artifacts also consisted of materials that were practically identical with those of late prehistoric sites in the region. The small projectile points and knives are of identical shapes and were associated with tubular pipes, stone mallets, pestles, and antler wedges. None of the materials that Garth found would be out of place at the Wallula site (45–WW–6) or at 45–BN–3. The proportions of projectile-point types are more like those of 45–WW–6 than those of 45–BN–3. Since no European trade goods were found on Sheep Island, it would be expected that the Sheep Island material culture would more closely resemble that of the Wallula site which was in part prehistoric.

The burials found by Osborne are apparently of the same group as those excavated by Garth. Osborne, however, found no artifacts associated with the graves, so that materials for comparison are still not available. His analysis of the skeletal material has not been published as yet.[8]

Since no European trade goods accompanied the graves and cremations, it is reasonable to assume a precontact date for the site. This would undoubtedly be prior to A.D. 1750. Since material culture is similar in every respect to late prehistoric sites that contain a few glass beads and bits of copper, the site is probably not a great deal earlier than 1750. It is impossible, however, to fix a more precise date.

CULTURE CHANGE IN THE McNARY REGION

In view of the fact that the time factor is understood only in a relative sense, the rate of culture change in the McNary region cannot be estimated. It can be demonstrated rather clearly that certain artifact types gave way to other types as time went by. During this span there were also modifications of economic pursuits and of the residence pattern. How much time is involved is not known. All that can be done at the present time is to review the type and nature of the changes as they are reflected in the archeological record. It must be understood, then, that patterns of change must be based on a certain amount of speculation that is due to normal incomplete recovery of the cultural picture at any one stage of development. To speak of a development in regard to the McNary region I believe is justified, for the results of the exacavations demonstrate just that. The total change between the earliest material and the latest is considerable. Each site or sites which follow in sequence add a few traits toward the development of a peak which was reached around A.D. 1800. At this time the aboriginal population appeared to be in its best adjustment to its environment. This adjustment was quite different from that of the earliest group in the local sequence.

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[8] The report on this work, "The Sheep Island Site and the Mid-Columbia Valley," by Douglas Osborne et al., is being published as River Basin Surveys Paper No. 24, this bulletin (Bur. Amer. Ethnol. Bull. 179).

The people who lived along the south bank of the Columbia River at a time prior to the ash fall utilized fish but had no specialized fishing equipment. They must have had a tradition of hunting, for their most skillfully made tools were projectile points. Other than their ornaments, the remainder of their material culture was of the expendable variety, simple tools that required little or no preparation prior to use. In this category were the crudely made hammers, choppers, and flake scrapers. These kinds of tools are seldom carried along on a movement or migration. They can be produced quickly as the need arises, and can be as readily discarded.

The people who lived on Hat Creek hunted rabbits, deer, and birds, caught a few salmon and shellfish, and probably gathered a certain amount of vegetable foods such as seeds, roots, and berries. They seemed to have lived in flimsy houses of a type that left no remains, and they made considerable use of red ocher paint. This is all that has been learned of the earliest group of people whose record has been picked up in the McNary region.

After the settling of the volcanic ash or pumicite, a group of people began to live on a terrace about 5 miles to the east of Hat Creek, a site now called Cold Springs. It is not possible to say how much time elapsed between the two occupations, but it appears to have been a very short time. This assumption is based partially on the close conformity of ash and midden at both sites, as well as the close continuity of material culture. Every type of artifact that was found at the Hat Creek site was also found deep in the midden at Cold Springs.

Before the village at Cold Springs had been in existence very long, two kinds of change had taken place. Certain artifacts had been improved, especially in workmanship, and certain new artifacts had been added to the inventory. Hammers and choppers were made by removing more flakes and using more careful flaking techniques. Specialized fishing equipment was added to the inventory. Notched, grooved, and perforated net weights were adopted, and the nets that were used are responsible for the great increase in the number of fish bones.

The projectile points were carried over from the Hat Creek period unchanged except that the concave-based type was no longer made, and obsidian was now used. Scrapers and knives were unchanged, but the long basalt knives became more numerous. Red ocher was still used, but it had been refined in some way and was pressed into tablets. Bone beads and bone awls were retained as they were into later times, and into the historical period.

Later on, the leaf-shaped projectile point was replaced by a side-notched point. This is the first appearance of notching of any type in the region. Along with side-notched points came the use of discoid choppers. The earliest of these were not specialized, in that the size of the cutting edge or bit had not yet become stabilized. Discoid choppers did not replace the cobble choppers, but were an addition to the inventory. About that time, the long basalt knives began to drop from use. A few of them were associated with side-notched points but the majority were lost or discarded when the midden was still shallow.

It is not clear when the first permanent houses were built. The earliest house found at Cold Springs was probably assignable to a time toward the end of the earliest occupation or about the beginning of what might be termed the middle part of the occupation. From that time on, semisubterranean pit houses were standard.

The middle period saw the introduction of the first marine shell and the first carved stone, the latter represented by a small steatite pendant and a short steatite tubular pipe. The rest of the material culture shows no change. Thus, in transition from the early part of the occupation of Cold Springs to the middle, leaf-shaped projectile points are replaced by side-notched points, and discoid choppers, new ornaments, and carved stone are added.

By the time people were living on Techumtas Island and across the Columbia at 45–BN–53, more changes had taken place. There may have been a time interval between these villages and the abandonment of Cold Springs, but the record is not clear. At least the people were no longer making the large side-notched points, and had replaced them with small delicate corner-notched or triangular projectile points. Some side-notched points were made but they were half the size of those used at Cold Springs (see pl. 46, *a*, for relative sizes). Small thumbnail scrapers made their appearance at this time, although the flake scrapers continued in use. Chipped-stone fetishes were found at the Techumtas Island site for the first time, and the stone mallet was probably introduced into the area then. Discoid choppers were numerous and probably specialized in form, although too few specimens were recovered for analysis. Spall flake scrapers or knives became more numerous than ever.

There seems to have been little change in the economy except for a decreased use of shellfish. Fishing and hunting were important, and it must be assumed that gathering of vegetable products was always carried on. The only change in architecture detectable is a slight decrease in the size of houses. The pattern of dual division of the village seen at Cold Springs was continued at Techumtas Island but was not apparent at 45–BN–53. Some time during the occupations of Techumtas Island and 45–BN–53 the first glass trade beads may have filtered into the region, probably well ahead of actual European penetration.

Farther upstream, the Wallula site seems to have been contemporaneous with the two villages just described. There is reason to believe that the village at the mouth of the Walla Walla River lasted longer, possibly until about A.D. 1800. The material culture there shows no significant change from the assemblage given for sites 45–BN–53 and 35–UM–17. There were some artifacts found at the Wallula site that were not found at the other two. These differences, however, are slight and most of them are probably due to chance recovery. The large stone adzes or hoes and the stone bowls may be of more recent vintage than the artifact assemblages of sites 45–BN–53 and 35–UM–17. A stone adz was associated with the very late occupation of Cold Springs terrace, and a stone bowl was found at 45–BN–6, a site of the historic period. Chipped-stone fetishes and stone mallets were not found at the Wallula site; they should have been, for these artifacts existed both earlier and later than the occupation of the Wallula site.

At Wallula there was no apparent shift in economic pursuits except for evidence of more fish being caught. The large number of projectile points and the quantity of animal bones attested that hunting was still important. Shellfish were still used but in small numbers, as they were at 45–BN–53 and Techumtas Island. Since no trace of architecture was found at Wallula, nothing can be said of it.

The burial site, 45–BN–3 (Berrian's Island), dates from approximately the same period as does the Wallula site. The elaborate collection of burial furniture included a number of artifacts that had not been found in earlier sites. These were:

Antler digging-stick handles
Bone fleshers
Carved fetishes
Long triangular knives
Sandstone shaft smoothers
Marine shells in great quantity
Teeth and claws as ornaments

Of the group the antler digging-stick handles and the carved slate fetishes seem more likely to be new additions, but without earlier graves it is not possible to be sure. One thing is certain: with the appearance of trade goods in quantity, the old ornaments and tools were not replaced but only supplemented. Practically all the artifacts that were made earlier were retained, with the result that iron and stone knives were found in the same grave, and both glass and shell beads were strung on the same necklace.

Whereas the occupation of site 45–BN–3, together with the graves and their furniture, seems to be a climax of aboriginal culture, site 45–BN–6 appears to show a decline. Site 45–BN–6 is certainly later than the occupation at 45–BN–3. The types of European trade material and the existence of horse bones indicate a late site. There is evidence that the village existed in 1812 and may have lasted until the middle of the 19th century.

The material culture of 45–BN–6 was more utilitarian than that of earlier sites, and most of the artifacts were of chipped stone. They included the usual array found at the other sites except for the better made artifacts such as pestles, mallets, celts, pipes, and the like. The presence of iron, galvanized iron, glass, and leather suggests that artifacts of European origin were beginning to replace some of the aboriginal tools. By this time, white civilization was probably exercising its usual influence on native culture, and the latter was rapidly deteriorating.

In order to show at a glance how certain artifacts appeared and disappeared in the McNary region, charts were prepared. These are somewhat simplified and conventionalized, but reflect the stratigraphy found by River Basin Surveys excavations. Figure 31 shows the time distribution of chipped-stone artifacts, and figure 32 does the same for ground-stone and bone. The position of each artifact vertically is an indication of the relative time that it appears in the McNary region. In most cases, the relative order of appearance of artifacts is better known than the order of their disappearance.

There are only two points in time that are definite: the time of the ash fall and the calendar year 1805. The reference to the ash fall as a point in time does not mean that we are able to give it a calendar date, but rather that it is an event that happened at one point in time and can be recognized at several different localities. The indefinite point in time is the beginning of the late prehistoric period. From all evidence discussed so far, this point would appear to be closer to 1805 than to the time of the ash fall.

The artifact drawings are not to scale since they included specimens from less than 1 inch to specimens as large as 15 inches in size.

Figures 33 to 40 give the areal distribution of certain artifacts. Only artifacts from documented excavations are shown, since amateur collectors so often forget where they find their relics. Only artifacts from the late prehistoric period are shown in these figures. The earlier periods are poorly documented in the Plateau.

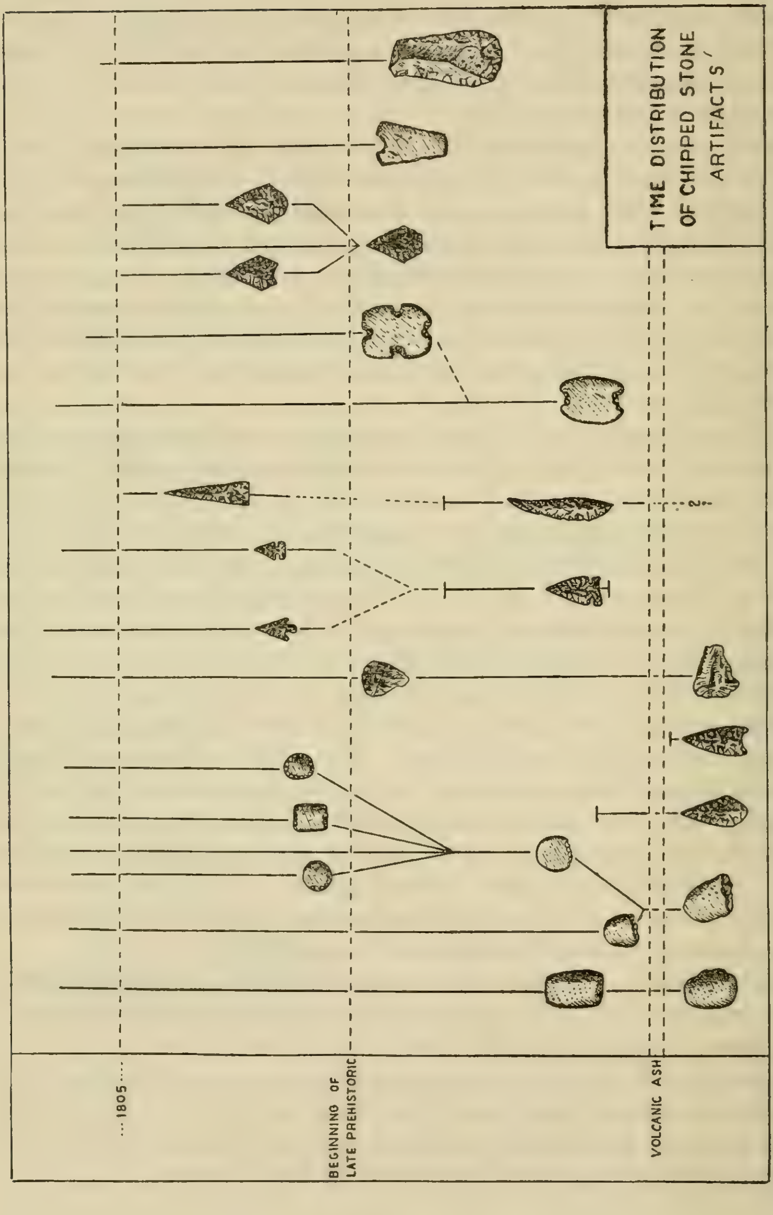
TIME DISTRIBUTION OF CHIPPED STONE ARTIFACTS
... 1805 ...
BEGINNING OF LATE PREHISTORIC
VOLCANIC ASH
?

Figure 31.—Time distribution of chipped-stone artifacts.

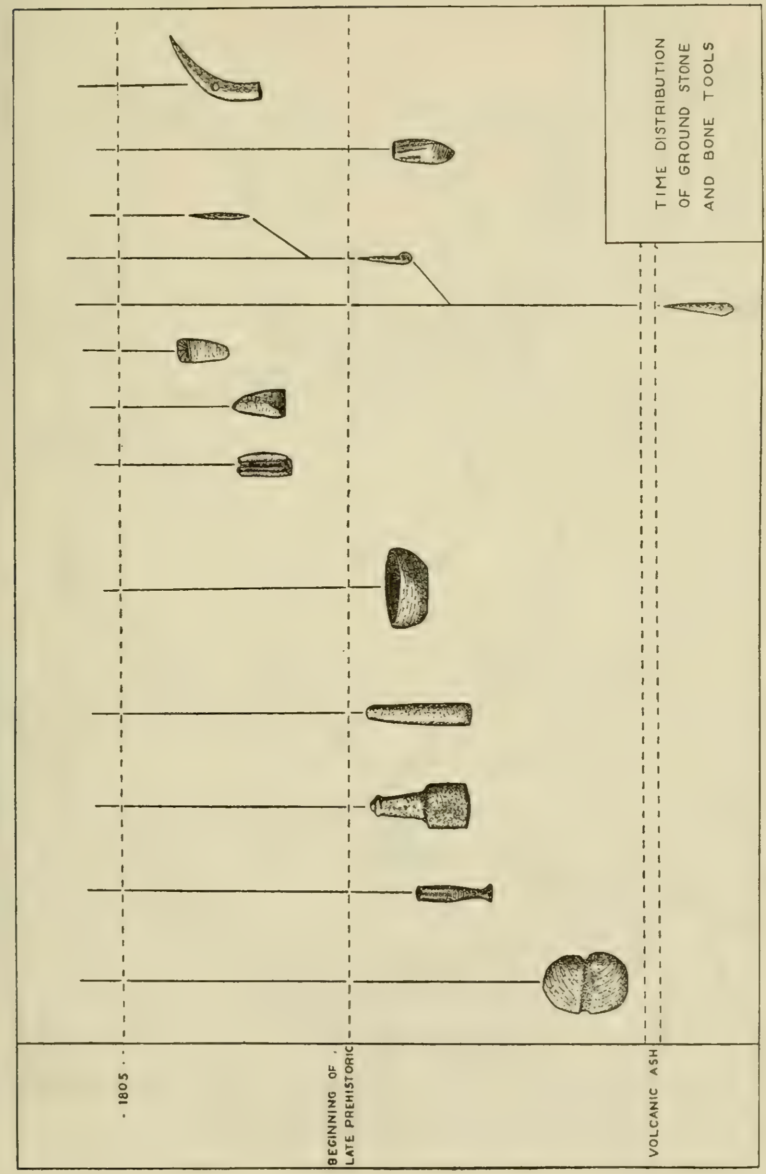

FIGURE 32.—Time distribution of ground-stone and bone tools.

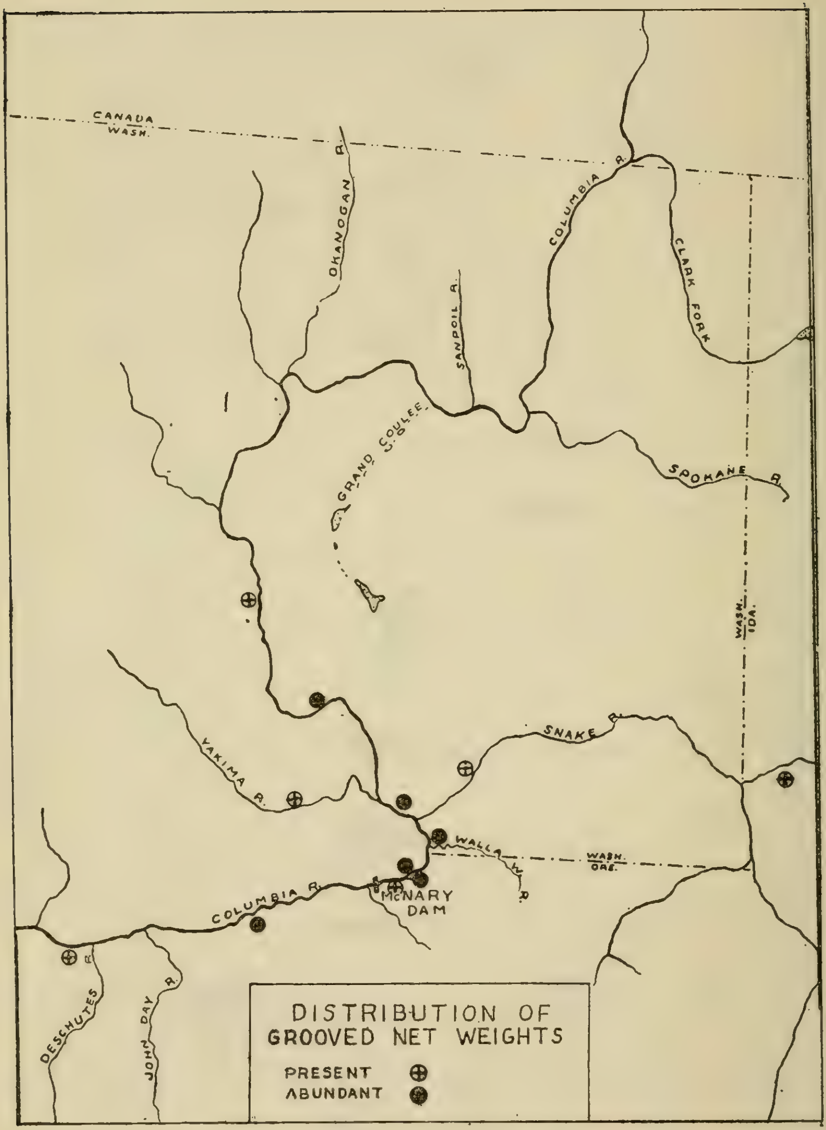
CANADA
WASH.
OKANOGAN R.
COLUMBIA R.
CLARK FORK
SANPOIL R.
GRAND COULEE
SPOKANE R.
WASH.
IDA.
SNAKE R.
YAKIMA R.
WALLA W. R.
WASH.
ORE.
COLUMBIA R.
McNARY DAM
DESCHUTES R.
JOHN DAY R.
DISTRIBUTION OF GROOVED NET WEIGHTS
PRESENT ⊕
ABUNDANT ●

FIGURE 33.—Distribution of grooved net weights.

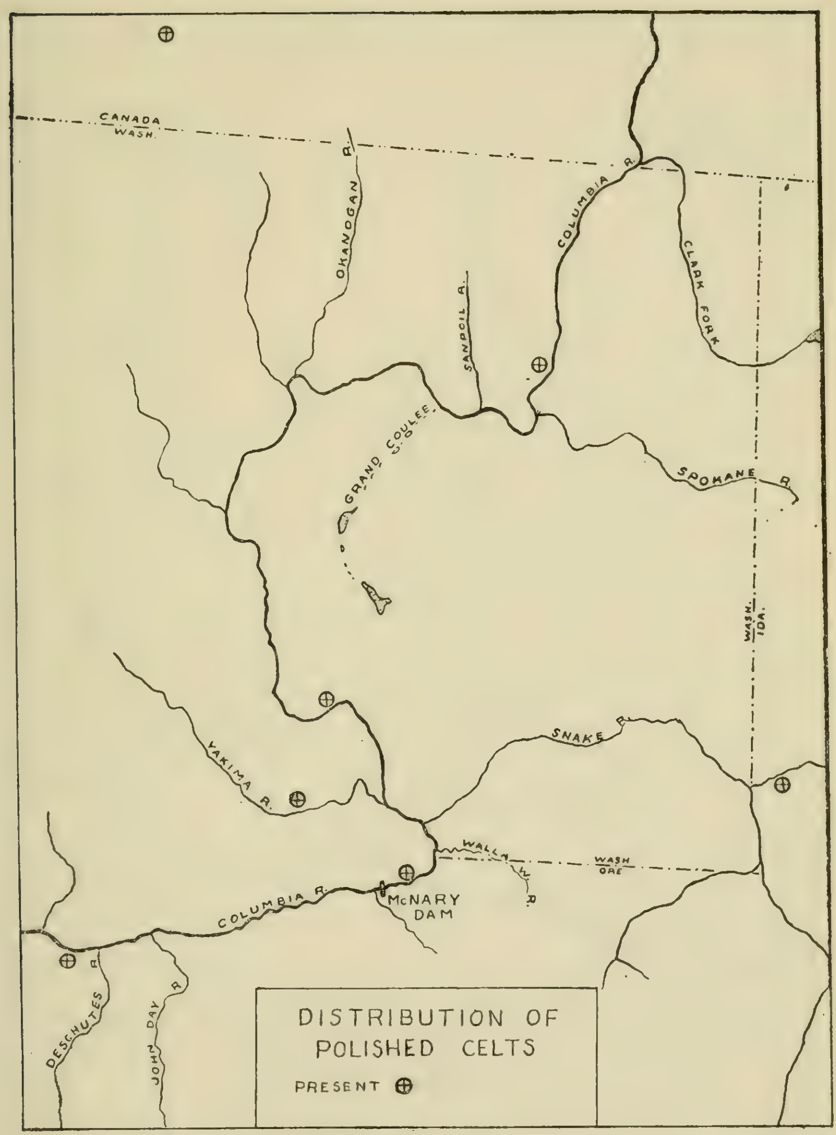
CANADA
WASH.
OKANOGAN R.
COLUMBIA R.
CLARK FORK
SANPOIL R.
GRAND COULEE
SPOKANE R.
WASH.
IDA.
SNAKE R.
YAKIMA R.
WALLA W. R.
WASH
ORE
McNARY DAM
COLUMBIA R.
DESCHUTES R.
JOHN DAY R.
DISTRIBUTION OF POLISHED CELTS
PRESENT ⊕

FIGURE 34.—Distribution of polished celts.

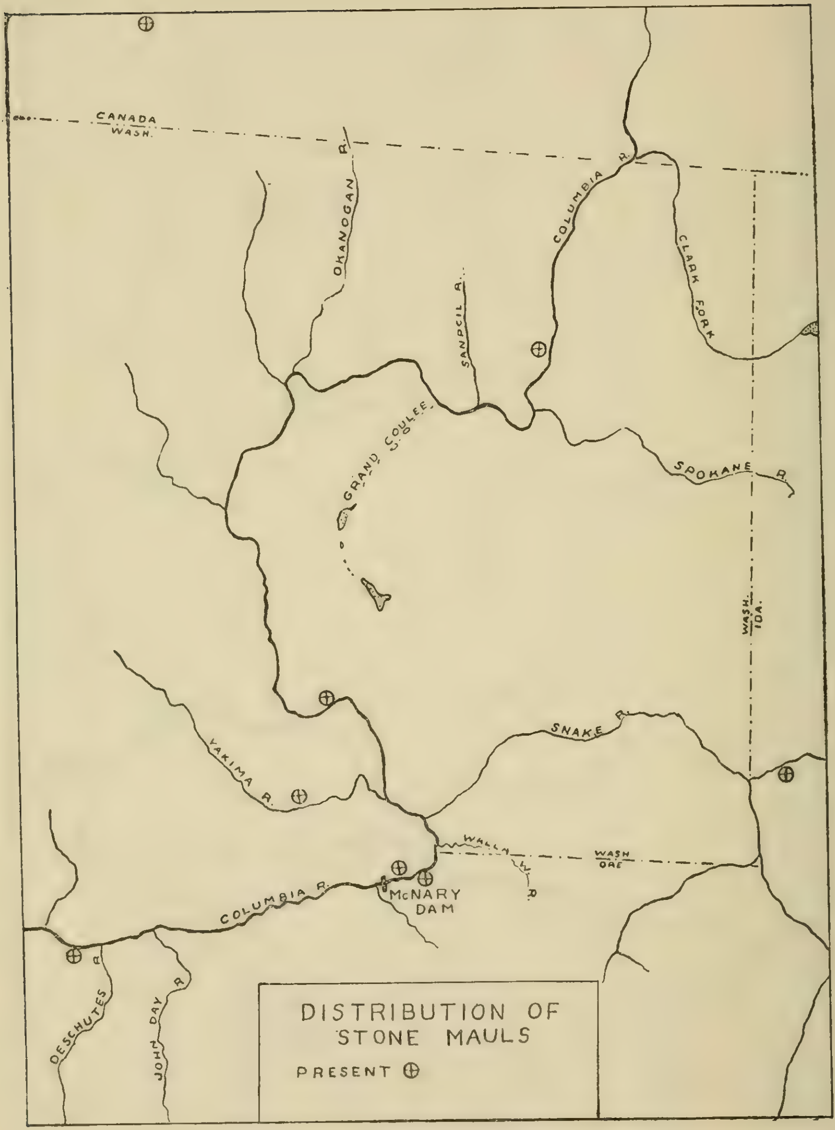
CANADA
WASH.
OKANOGAN R.
COLUMBIA R.
CLARK FORK
SANPOIL R.
GRAND COULEE
SPOKANE R.
WASH.
IDA.
SNAKE R.
YAKIMA R.
WALLA WALLA R.
WASH
ORE
COLUMBIA R.
McNARY DAM
DESCHUTES R.
JOHN DAY R.
DISTRIBUTION OF STONE MAULS
PRESENT ⊕

FIGURE 35.—Distribution of stone mauls.

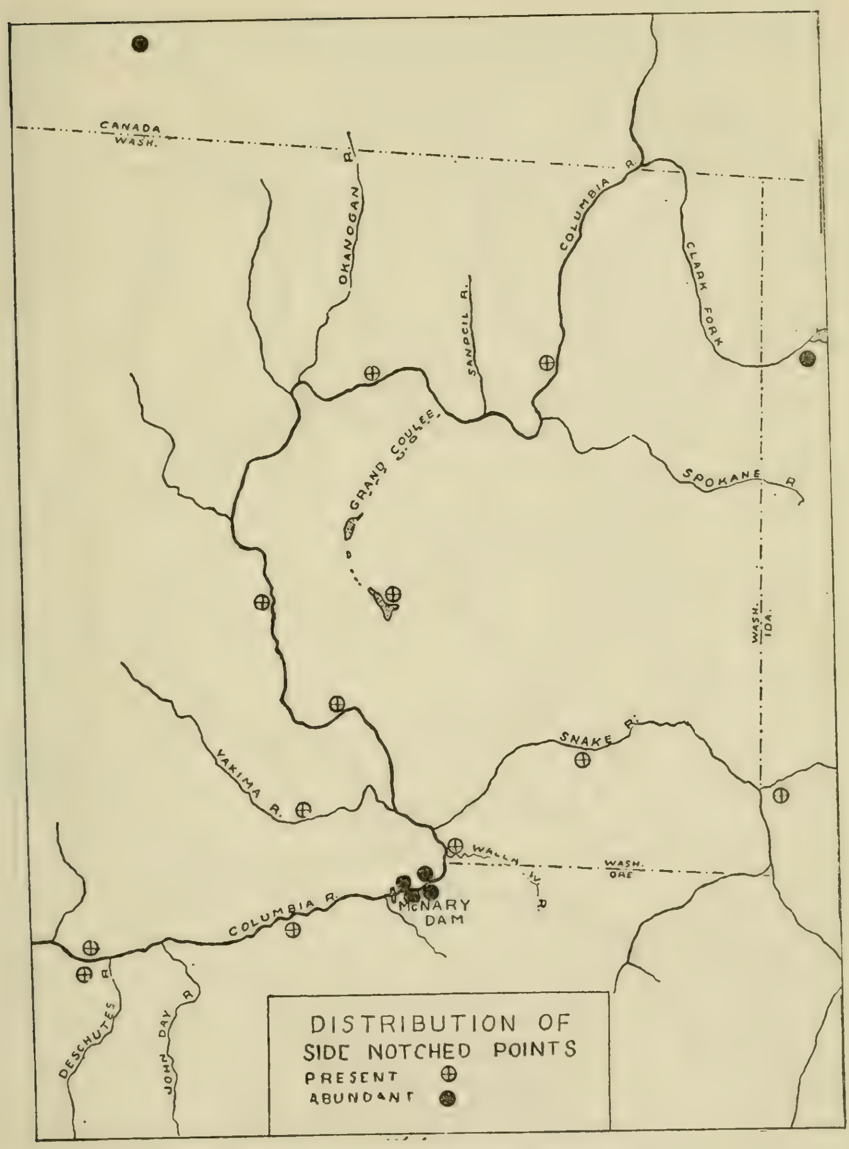
CANADA
WASH.
OKANOGAN R.
SANPOIL R.
COLUMBIA R.
CLARK FORK
GRAND COULEE
SPOKANE R
WASH.
IDA.
SNAKE R.
YAKIMA R.
WALLA W. R.
WASH.
ORE
McNARY DAM
COLUMBIA R.
DESCHUTES R
JOHN DAY R
DISTRIBUTION OF
SIDE NOTCHED POINTS
PRESENT ⊕
ABUNDANT ●

FIGURE 36.—Distribution of side-notched points

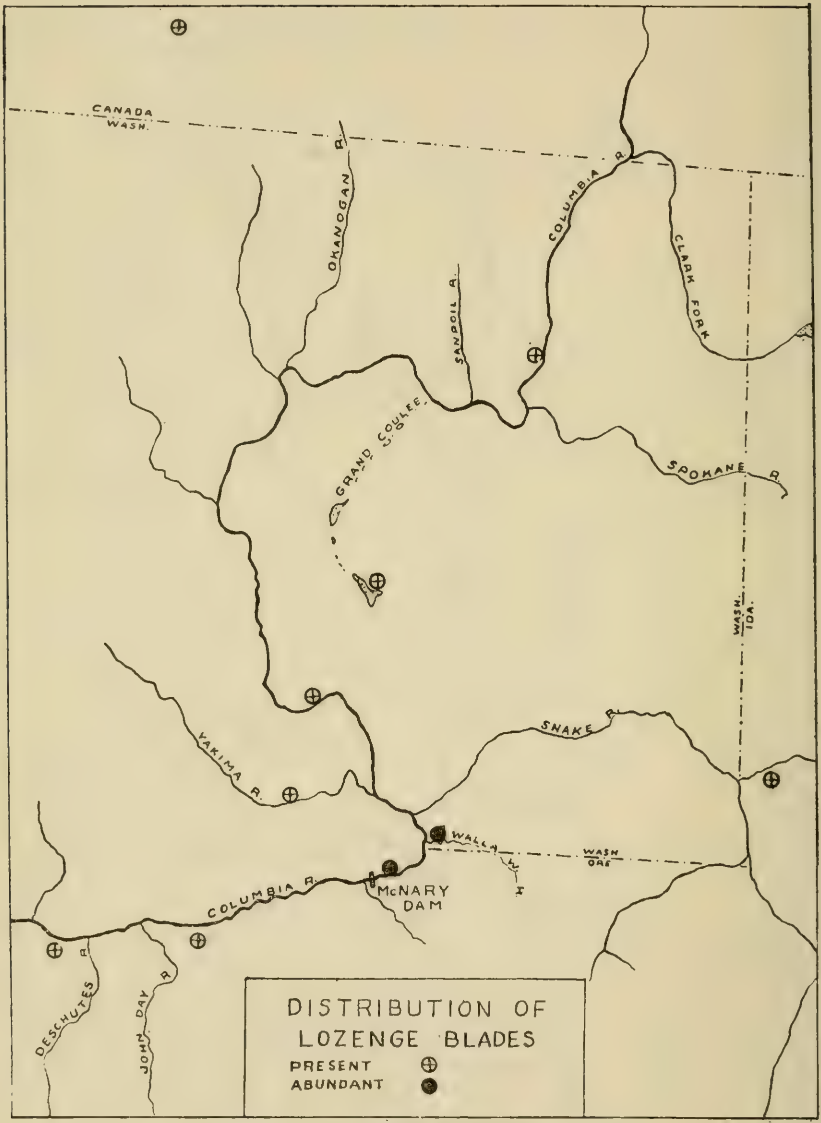
CANADA
WASH.
OKANOGAN R.
COLUMBIA R.
CLARK FORK
SANPOIL R.
GRAND COULEE
SPOKANE R.
WASH.
IDA.
SNAKE R.
YAKIMA R.
WALLA W.
WASH
ORE
COLUMBIA R.
McNARY DAM
DESCHUTES R.
JOHN DAY R.
DISTRIBUTION OF LOZENGE BLADES
PRESENT ⊕
ABUNDANT ●

Figure 37.—Distribution of lozenge blades.

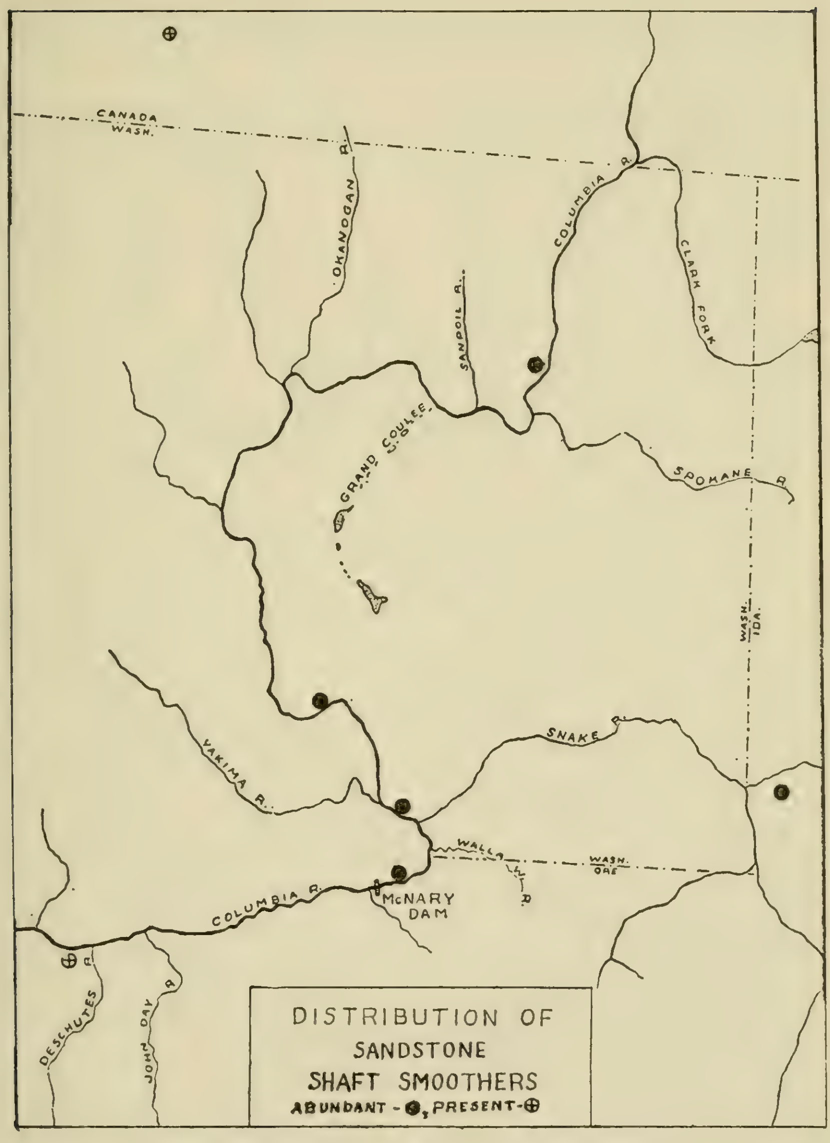
CANADA
WASH.
OKANOGAN R.
COLUMBIA R.
CLARK FORK
SANPOIL R.
GRAND COULEE
SPOKANE R.
WASH.
IDA.
YAKIMA R.
SNAKE R.
WALLA WALLA R.
WASH.
ORE.
COLUMBIA R.
McNARY DAM
DESCHUTES R.
JOHN DAY R.
DISTRIBUTION OF SANDSTONE SHAFT SMOOTHERS
ABUNDANT - ●, PRESENT - ⊕

Figure 38.—Distribution of sandstone shaft smoothers.

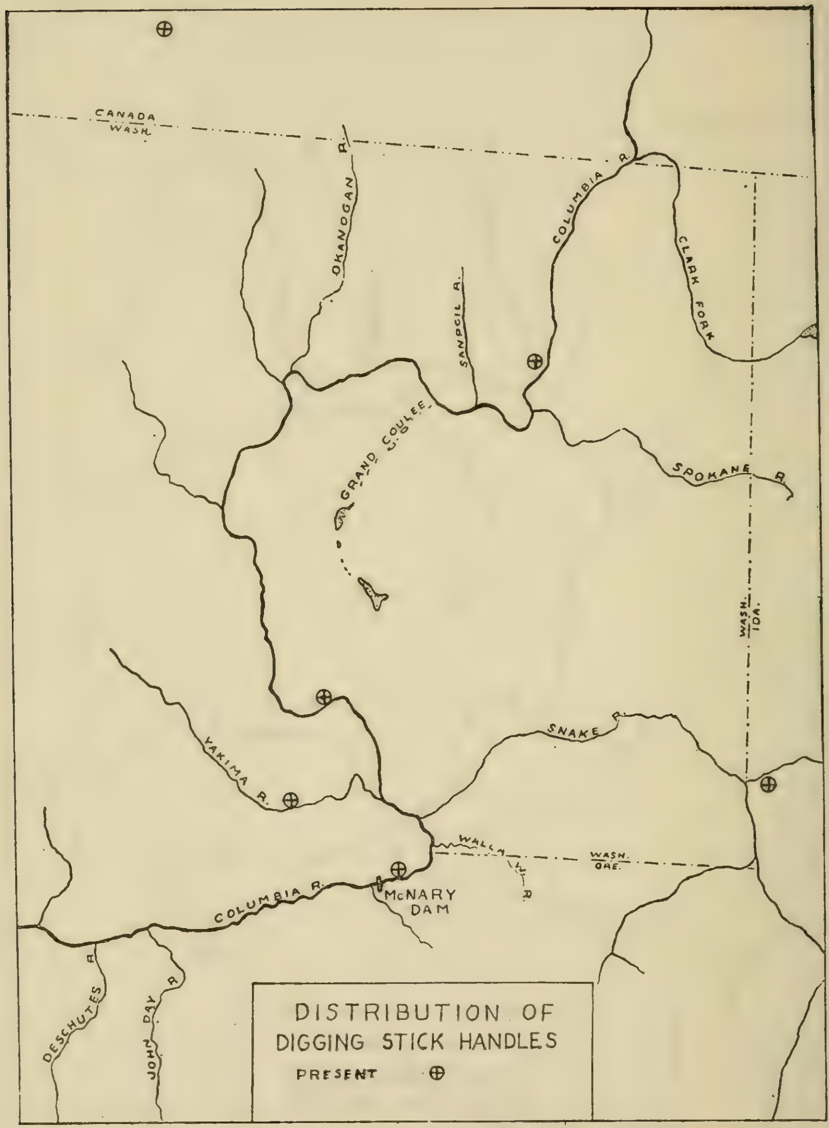
CANADA
WASH.
OKANOGAN R.
COLUMBIA R.
CLARK FORK
SANPOIL R.
GRAND COULEE
SPOKANE R.
WASH.
IDA.
YAKIMA R.
SNAKE R.
WALLA WALLA R.
WASH.
ORE.
COLUMBIA R.
McNARY DAM
DESCHUTES R.
JOHN DAY R.
DISTRIBUTION OF DIGGING STICK HANDLES
PRESENT ⊕

Figure 39.—Distribution of digging-stick handles.

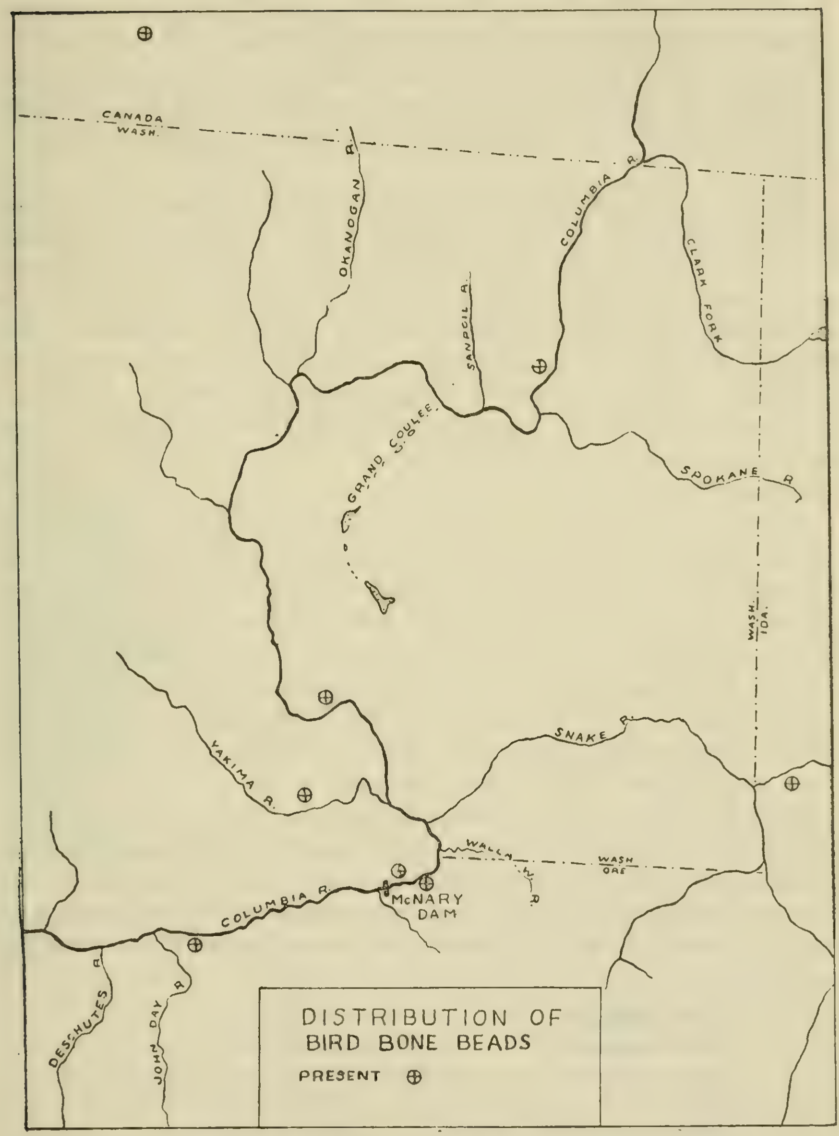
CANADA
WASH.
OKANOGAN R.
COLUMBIA R.
CLARK FORK
SANPOIL R.
GRAND COULEE
SPOKANE R
WASH.
IDA.
SNAKE R.
YAKIMA R.
WALLA
W
R
WASH
ORE
COLUMBIA R.
McNARY
DAM
DESCHUTES R
JOHN DAY R
DISTRIBUTION OF
BIRD BONE BEADS
PRESENT ⊕

Figure 40.—Distribution of bird-bone beads.

COMPARATIVE PLATEAU SITES

The scarcity of published material on archeological excavations in the Plateau is unfortunate. Almost all the existing reports have been concerned with sites of the late prehistoric and early historic periods. This may be due to the earlier sites being less numerous and difficult to locate. However, one should not overlook the fact that late sites usually contain more spectacular artifacts and larger quantities of them.

There are several ways in which the material culture of one area may be compared with that of another. One of the most widely used methods is the trait list which records presence and absence of artifact types. Trait list comparisons are valid within limits. If the two artifact collections are of the same general time horizon and consist of large enough samples, reasonably good conclusions can be reached. There are, of course, certain pitfalls. Presence and absence listing usually does not account for the abundance of an artifact type in one area and its rarity in the other. This must be done by some additional notation.

Statistical treatment of trait lists for the derivation of coefficients of correspondence usually is unsatisfactory. The results can be no better than the data used, and who can be sure that equal weight should be given to each trait? The sample from each area is seldom, if ever, completely random, and rarely are collections large enough to be good statistical samples. For these reasons it is believed that a list of traits for each area accompanied by observations is suitable for the purpose of comparison. In considering the other documented sites in the Plateau this practice is followed.

Certain artifact types are found all over the Plateau; especially are they associated with the late prehistoric and the early historic periods. To save repetition, a list of artifacts common to all sections of the Plateau is given below. It is to be understood that these are present at all of the sites to be discussed, and are not, therefore, useful for comparison.

Cobble hammers
Cobble choppers
Polished pestles
Stone mallets
Small corner-notched points
Flake scrapers
Tubular pipes
Antler wedges
Splinter awls
Two-notched net weights
Chipped-stone drills
Leaf-shaped blades
Dentalium shell

THE DALLES REGION

Downstream from the McNary Reservoir, there are several documented sites that are comparable. At The Dalles and vicinity, on the western edge of the Plateau Area, a considerable amount of work was carried out by Strong, Schenck, and Steward (1930). Their methods consisted of extensive test excavations, surface collecting, and examination of private collections.

Although the sites tested were of different ages, some with European trade goods and some without, no local sequence was developed. The time factor was not ignored, but the report was one which considered the area and its artifacts rather than making any attempt at chronology. Nevertheless, a horizon comparable to the late prehistoric period in the McNary region is recognizable. Earlier horizons are not isolated in The Dalles region. Table 2 lists artifacts common to both regions as well as those found exclusively in each.

TABLE 2.—*Artifacts found in The Dalles and McNary regions*

Artifacts	Both regions	McNary only	The Dalles only
Grooved net weights	×		
Shaft smoothers	×		
Lap stones	×		
Stone bowls	×		
Discoid choppers	×		
Side-notched points	×		
Lozenge blades	×		
Bone needles	×		
Chipped-stone fetish	×		
Olivella and haliotis shells	×		
Ground-slate fetish		×	
Polished celts		×	
Four-notched weights		×	
Digging-stick handles		×	
Bird-bone beads		×	
Glycymeris shell		×	
Baked? clay			×
Deep bowls			×
Fancy carved bone			×
Sculptured stone			×
Bone harpoons			×
Harpoon sockets			×
Polished-stone chisels			×
Bone labrets			×
Shouldered points			×

Although table 2 seems to show a number of differences in material culture between The Dalles and the McNary regions, the similarities are more striking. Sculpture in stone and bone, especially anthropomorphic forms, was in vogue at The Dalles but rare in the McNary. However, all of the fancy stone art illustrated by Strong is from private collections. Elaborate pieces of sculptured stone have yet to be found in documented excavations, but are very common in private collections. Sufficient samples of fairly good stone sculpture have been found to show that sculpture was practiced in the region, but the really elaborate pieces are subject to question. Anthropomorphic bone carving, on the other hand, has been documented. Small clay tablets with designs pressed in with a sharp instrument are documented for The Dalles region and are unique there. The polished stone chisels described for The Dalles region are very similar in material and workmanship to the McNary celts. Apparently, however, they were used in some other manner. Strong did not list chipped-stone fetishes for the region, but the writer found them in two sites including one site tested by Strong.[9]

HOBO CAVE

This deep stratified cave is situated on the south bank of the Columbia River, about 35 miles east of The Dalles and about 5 or 6 miles east of the John Day River. It was excavated in 1950 by the University of Oregon, under the supervision of the writer. The cave deposit, with a maximum depth of 9 feet, showed almost continuous occupation. A local sequence, at least for projectile points, was developed, and is the only sequence in the entire Plateau available for comparison with that of the McNary region.

Briefly stated, there were three distinct levels, each characterized by diagnostic projectile points. The top level (0 to 0.88 m. below the surface) yielded 58 projectile points, nearly all of them small and corner notched (average length 25 m.). They were practically identical with points from Wallula (45–WW–6) and contemporary sites in the McNary region. The exception is that there were no side-notched points recovered in Hobo Cave.

The second level (0.88 to 1.65 m. below the surface) was characterized by larger points (average length 38 mm.). Of 35 points recovered in this level, 31 were corner notched, and most of them had straight bases. The size difference between the points of the first and second levels is clearly shown in plate 46. There is an interesting parallel with the situation in the McNary, for in both places the small points are preceded by a point type that was half again as large. Although all of the McNary points (from Cold Springs) were side notched and nearly all of the second-level points in Hobo Cave were corner notched, the trend is the same.

Between 1.65 m. and 1.70 m. there was a stratum of sterile sand in Hobo Cave. It stood in sharp contrast to the rest of the cave fill, which is composed of silt, charcoal, ashes, and occupational debris. Beneath the sand was a third cultural level that was characterized by projectile points with shoulders, but no notches or barbs (see pl. 46, *a*, third row from top). Only 12 projectile points were recovered in the third level. Ten of these were shouldered points (average length 41 mm.), one was a basal fragment of a leaf-shaped blade, and the other was a corner-notched point which was typical of the second level. A comparison between these projectile points and those of the McNary region finds the general trend of simple unnotched and barbless points being earlier in both places.

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[9] Strong et al., 1930, p. 20. This was Strong's site 14. In 1952, Shiner recovered 65 chipped-stone fetishes among some 1,300 artifacts from the site.

Below the cultural level which contained the shouldered points were several other artifacts. Among these were two obsidian points of the corner-notched variety, but they differed from those of the second level. With them were nine disk shell beads and a flake scraper. This, the lowest level of the cave, is poorly defined because of the scarcity of artifacts, and no attempt can be made to relate it to other cultures.

Besides the projectile points, numerous other artifacts were recovered in Hobo Cave. They did not, however, differ significantly from one level to the next. Level 1, which had the small projectile points, is compared with the late prehistoric material culture of the McNary region in table 3.

Table 3.—*Comparison of artifacts of level 1, Hobo Cave, with late prehistoric material culture of the McNary region*

Artifacts	Both regions	McNary only	Hobo Cave only
Lozenge-shaped knives	×		
End scrapers	×		
Discoid choppers	×		
Bone needles	×		
Bone flakers	×		
Bird-bone beads	×		
Disk shell beads	×		
Side-notched points		×	
Notched net weights		×	
Grooved net weights		×	
Pestles		×	
Chipped-stone fetish		×	
Ground-slate fetish		×	
Polished celts		×	
Tubular pipes		×	
Shaft smoothers		×	
Lap stones		×	
Fish spear tines			×
Bone disk beads			×
Baked? clay			×

Since Hobo Cave was situated high on a hillside, it can not be considered the same sort of occupation that would be found on a river terrace. The cave may have been used by hunting parties, but it was not a normal residence. Therefore, many of the utilitarian artifacts, especially the heavy ones, would not be expected there. This can explain the absence of net weights and the scarcity of hammers and choppers. The more carefully made artifacts, such as tubular pipes, mallets, celts, and digging-stick handles normally are found only in graves. The absence of side-notched points, however, must be due to cultural preference. One of the traits, baked clay, cannot be explained fully. Clay sherds, which resembled pottery, were recovered in the second and third levels. The material was not true pottery, but no one has been able to identify it.

Hobo Cave thus gives a sequence which follows the trends shown by the projectile points in the McNary region. Relatively simple points are replaced by notched points, and those are followed by a sharp reduction in size. At the present time it is not possible to demonstrate contemporaneity for the changes in both regions, but European trade goods are associated only with the small projectile points in each region.

JOHN DAY RESERVOIR

The Columbia River Valley between Hobo Cave and the McNary Dam is within the limits of the proposed John Day Reservoir. As a potential reservoir, it was surveyed by River Basin Surveys in 1950. Not very much was recovered in the way of material culture during the survey since the area is subject to constant search by relic hunters. However, 88 archeological sites were recorded and the surface collections from those sites compared closely with materials from the McNary region. The collections included many projectile points, net weights, scrapers, hammers, and choppers.

THE WAHLUKE SITE

Upstream from the McNary region along the Columbia River, there are several archeological sites that have been scientifically excavated and reported. One of these is a site known as Wahluke, which was excavated by Herbert Krieger (1928) in 1926. Wahluke was a village of some 30 houses and a burial area. It is situated on the west bank of the Columbia River about 60 air miles northwest of the Wallula site.

The Wahluke site was apparently of the late prehistoric period. Although specimens of copper were recovered, Krieger identifies it as native copper (ibid., p. 13). Nevertheless, the total artifact assemblage is clearly that of the late period just prior to European influence. As in the case of the artifacts of The Dalles region, the tools and ornaments common to all of the Plateau during the late prehistoric are not listed; otherwise, table 4 gives a comparison of the artifacts of Wahluke and the McNary region.

The close similarity of the material culture of Wahluke to that of the McNary region is apparent. Krieger's report does not give the frequency of artifact types, but the illustrations clearly show the similarities. While he may not have recognized chipped-stone fetishes as diagnostic artifacts, the polished-slate fetishes would have been apparent. No one else in the Plateau seems to have recognized them as artifacts, even when they were numerous in the region. The appearance of elbow pipes in a prehistoric site is puzzling. Since Krieger did not always make it clear which artifacts were recovered in situ and which artifacts were merely typical of the region, it would be

TABLE 4.—*Comparison of artifacts of the Wahluke site and the McNary region*

Artifacts	Both regions	McNary only	Wahluke only
Four-notched net weights	×		
Grooved net weights	×		
Discoid choppers	×		
Polished celts	×		
Side-notched points	×		
Lozenge blades	×		
End scrapers	×		
Sandstone shaft smoothers	×		
Bone whistles	×		
Bone flakers	×		
Bone beads	×		
Digging-stick handle	×		
Bone dice	×		
All kinds of shell	×		
Lap stones		×	
Stone bowls		×	
Chipped fetish		×	
Polished-slate fetish		×	
Bone needles		×	
Elbow pipes			×
Shouldered points			×
Native copper			×
Stone clubs			×

reasonable to suspect that elbow pipes were not in direct association with the Wahluke occupation. Elbow pipes are not a typical Plateau trait until the Plains influences with horse and gun come in. Native copper is not reported from any other archeological excavations in the area. Minor differences can be seen in types of projectile points and the artifacts mentioned above, but the bulk of the material culture shows close affiliations with the McNary region. This is especially true of the heavy stone tools used for net weights, hammers, and choppers.

THE YAKIMA REGION

The Yakima River enters the Columbia from the west, about 10 miles north of the mouth of the Snake River. It rises in the Cascade Mountains about 120 miles away, and flows through an open valley most of the way. The fieldwork and report by Harlan I. Smith were accomplished between 1908 and 1910 (Smith, 1910). His method was a combination of surface survey, excavation, and examination of private collections. The region that he investigated extended nearly 100 miles from Ellensburg, Wash., to the Columbia River. Part of the Yakima region lies just north and west of the McNary region and south of the Wahluke site. Since the Wahluke material culture was so similar to that of the McNary region, it might be expected that the Yakima materials would also be similar. The similarities were found, and are shown in table 5.

The Yakima region appears to differ slightly from the McNary region in material culture. The differences are in almost the same traits that distinguished the McNary from The Dalles.

It is remarkable that Smith did not find bone whistles and sandstone shaft smoothers in the Yakima Valley. These artifacts have been re-

TABLE 5.—*Comparison of artifacts in the McNary and Yakima regions*

Artifacts	Both regions	McNary only	Yakima only
Four-notched net weights	×		
Grooved net weights	×		
Discoid choppers	×		
Stone bowls	×		
Polished celts	×		
Side-notched points	×		
Lozenge blades	×		
End scrapers	×		
Bone beads	×		
Digging-stick handle	×		
Bone dice	×		
Bone needles	×		
All kinds of shell	×		
Chipped fetish		×	
Polished-slate fetish		×	
Sandstone shaft smoothers		×	
Bone whistles		×	
Stone clubs			×
Elbow pipes			×
Sculptured pipes			×
Elaborately carved bone			×
Elaborately carved pestles			×

covered both north and south of the Yakima region, and Smith was unable to explain their absence. It is possible that the elaborate carving in stone and bone belonged to a late period, perhaps as late as 1875, to 1900. Smith opened several graves which were quite recent at the time. Most of the complex sculpture was in the hands of private collectors, and thus of unknown provenience. With these exceptions, however, the Yakima material culture is nearly identical to that of the McNary region.

THE CHIEF JOSEPH RESERVOIR

About 100 air miles north of Wahluke, considerably farther via the Columbia River, is the Chief Joseph Reservoir. It is downstream from the Grand Coulee Dam. During the summer of 1950 (Osborne, Crabtree, and Bryan, 1952), River Basin Surveys parties excavated several sites along the river. Although some information on architecture was recovered, artifacts were few in number. All the sites appeared to be late, and even the graves were poorly furnished. Too few artifacts were found to permit a systematic comparison with those of the McNary region, but the ones that were found did not differ significantly.

THE UPPER COLUMBIA REGION

Archeological reconnaissance in the Grande Coulee Reservoir began in 1939, after the dam was under construction, and because of the rising water, was not carried to completion. The salvage archeology of Collier, Hudson, and Ford (1942) recovered representative collections of artifacts but little information on prehistoric architecture. Their region included both banks of the Columbia River from the Grand Coulee Dam almost to the Canadian border, and it is referred to as the Upper Columbia region.

Although some of the sites were without European trade goods, none of them appeared to be earlier than the late prehistoric period. This makes all of the material culture suitable for comparison with that of the McNary region. Table 6 compares the material culture of the two regions.

TABLE 6.—*Comparison of artifacts of the Upper Columbia and McNary regions*

Artifacts	Both regions	McNary only	Upper Columbia only
Lozenge blades	×		
Small side-notched points	×		
End scrapers	×		
Spall flakes	×		
Tubular pipes	×		
Polished celts	×		
Grooved net weights	×		
Discoid choppers	×		
Sandstone shaft smoothers	×		
Digging-stick handles	×		
Bone points	×		
Bone needles	×		
Bone dice	×		
Bone beads	×		
Bone whistles	×		
Chipped fetish	----------	×	
Polished-slate fetish	----------	×	
Stone bowls	----------	×	
Four-notched net weights	----------	×	
Large corner-notched points	----------	----------	×
Barbed harpoon points	----------	----------	×
Stone clubs	----------	----------	×
Grooved mauls	----------	----------	×
Elbow pipes	----------	----------	×

The close similarity between the two regions is clearly indicated, but a few reservations should be made. Notched and grooved net weights are present in the Upper Columbia region, but are not at all numerous. The same is true of nearly all of the hammering and chopping tools made from river-worn cobbles. In the Upper Columbia most chopping tools were chipped all over, and were made of cryptocrystalline stone. As was the case in nearly every region outside of the McNary, carving in stone and bone was important in the Upper Columbia. In spite of the differences in numbers of certain artifacts, it is clear that both the McNary and Upper Columbia regions shared many material culture traits. The traits included all types of artifacts, utilitarian as well as decorative, and in most cases were nearly identical in every small detail.

BRITISH COLUMBIA

Harlan Smith's archeological investigations in British Columbia were part of the Jesup North Pacific Expedition, and were carried out in 1897 (Smith, 1899). Smith explored burial places and villages along the Fraser and Thompson Rivers, and also examined private collections. The bulk of the material culture illustrated in his report came from a burial ground near Lytton, British Columbia. The graves contained no articles of European manufacture, but appeared, according to Smith, to be of the late prehistoric period. The close resemblance of the artifacts to those of the late prehistoric period in the McNary region tends to confirm his conclusion. Table 7 compares the Lytton material culture with that of the McNary region.

Table 7.—*Comparison of Lytton material culture with that of the McNary region*

Artifacts	Both regions	McNary only	Lytton only
Lozenge blades	×		
Side-notched points	×		
End scrapers	×		
Polished celts	×		
Stone bowls	×		
Sandstone shaft smoothers	×		
Lap stones	×		
Digging stick handle	×		
Bone needles	×		
Bone dice	×		
Bone beads	×		
All kinds of shell	×		
Chipped fetishes		×	
Polished slate fetishes		×	
Disk choppers		×	
Four-notched net weights		×	
Grooved mauls			×
Eccentric points			×
Fancy carved bone			×
Harpoon sockets			×

Unless Smith failed to illustrate most of the Lytton projectile points, there are few resemblances to be seen in the points of the two regions. Since Lytton is situated in the extreme northwest corner of the Plateau, some 350 miles from the McNary region, it is significant that the similarities in material culture are so great. There is no way of determining the relative frequency of the different types of artifacts from Lytton. However, the presence of so many complex artifacts that are identical in detail with those from all over the Plateau indicates close cultural connections.

THE SNAKE-CLEARWATER REGION

Spinden's investigations among the Nez Percé Indians were made between 1897 and 1900, with additional work done in 1907 (Spinden, 1908). In the region extending from the forks of the Clearwater River to and along the Snake River, he examined excavations made by railroad construction. He also made surface surveys and studied collections that belonged to private collectors. Spinden, like H. I. Smith, was more interested in presenting an areal view of the material culture, and somewhat neglected the time factor. However, from the stratigraphic studies made in the McNary Reservoir, it is possible to give time placement to most of Spinden's materials. In table 8, similarities and differences in the material cultures of the McNary and Snake-Clearwater regions are listed.

TABLE 8.—*Similarities and differences in the material cultures of the McNary and Snake-Clearwater regions*

Artifacts	Both regions	McNary only	Snake River only
Four-notched net weights	×		
Grooved net weights	×		
Discoid choppers	×		
Polished celts	×		
Side-notched points	×		
End scrapers	×		
Lozenge blades	×		
Sandstone shaft smoothers	×		
Stone bowls	×		
Lap stones	×		
Bone whistles	×		
Bone flakers	×		
Bone beads	×		
Digging-stick handles	×		
Bone dice	×		
Bone needles	×		
All kinds of shell	×		
Chipped fetish	-------------	×	
Polished-slate fetish	-------------	×	
Elbow pipes	-------------	-------------	×
Gorge hook	-------------	-------------	×
Spear tines	-------------	-------------	×

The correspondence of the material culture of the Snake-Clearwater region with that of the McNary is probably closer than that of any other region discussed to this point. The similarity may actually be more in the nature of identity. Chipped-stone fetishes were not listed by Spinden, but may have been present in the Snake-Clearwater region.

The elbow pipes, which were reported for that region, very possibly are typical of the historical period and not of the late prehistoric. Gorge hooks and fish-spear tines have not been recovered in the McNary region, but early travelers' journals give the impression that both were typical artifacts of that region (see section on historical period, pp. 164–165). The gorge hook is a short piece of bone, pointed at each end, and secured at the center to a fishing line. The bone turns sideways in the throat of a fish, and thus acts as a hook.

If these differences can be eliminated, the Snake-Clearwater and the McNary regions would have been nearly identical in material culture. Historical sources have verified the resemblances of the Walla Walla, Umatilla, and Nez Percé Indians for the period from 1805 to 1835, so a correspondence in prehistoric times might be expected.

Comparable materials were available from all sections of the Plateau except the northeast. Archeological surveys and test excavations were made there by River Basin Surveys, but insufficient artifacts were recovered for comparison (Shiner, 1952 a). From the limited collections made, there is good reason to believe that the region from Coeur d'Alene Lake north to Pend Oreille Lake differed significantly in material culture from the rest of the Plateau. The region, although within the Columbia Basin, is atypical. It is heavily wooded and is well provided with lakes and running streams. Although Ray's analysis of Plateau political and social organization indicates that the region had strong Plateau affinities (Ray, 1939, p. 145), its cultural position in prehistoric times cannot be defined until further excavations are made there.

EARLY PLATEAU SITES

Here and there in the Plateau there are traces of cultures that are probably much more ancient than the materials from the Hat Creek site. Cressman (1953, personal communication) has recently recovered evidence of Early Man near The Dalles, Oreg. Details are lacking at the present time, so comparisons cannot be made. At Lind Coulee, near Moses Lake, Wash., Daugherty has recently recovered evidence of Early Man (Daugherty, 1956). Again, details are not available, but Daugherty states that his materials bear no resemblance to the artifacts from Hat Creek. Radio carbon dates for the Lind Coulee site averaged in the neighborhood of 8,700 years.

The theory that a widespread Paleo-Indian culture existed in the northwest was first advanced by Cressman. Although the majority of his fieldwork has been carried on in the northern Great Basin, Cressman until recently has been the only active archeologist in the Pacific Northwest. He has, therefore, been an authority on the Plateau, the northern Great Basin, and much of the Northwest Coast. Cressman's interest has centered in Early Man and in the many problems connected with such a study. Availability of comparative material for a time focused his attention to the south. He made comparative studies of Oregon cave materials with early cave materials of the southern Great Basin and with certain artifact types from the southwest. He did not, however, lose interest in the areas to the north and northeast of the northern Great Basin.

Cressman had formulated a theory that early man in the western part of North America was divisible into two culture types (Cressman, 1950, p. 369). East of the Rocky Mountains was a hunting type of culture typified by Folsom man. On the west of the mountains the culture represented was a mixture of hunting and gathering, characterized by an abundance of grinding tools. The presence of these tools in the west spelled a fundamental difference in culture to Cressman. He felt that out of the early hunting and gathering culture of the West, there developed a group of localized cultures, and that the development of these had little if any relationship to the Folsom and later developments east of the Rocky Mountains. Looking to the future, he wrote:

> We shall eventually, by systematic extension of this work north and south and east and west, discover whether there was a province of culture west of the Rockies extending from far toward the Southwest well toward the Plateau re-

> gion of the north, and, if there was such a province, what the cultural substratum was from which the later localized types of culture developed. [Cressman, 1940, p. 15.]

Daugherty's discoveries seem to be bearing out Cressman's predictions except for the fact that grinding tools were not an integral part of the Lind Coulee culture. In fact, grinding tools of stone may not even exist north of the Columbia River. They did not appear in any of the Columbia and Snake River sites investigated by River Basin Surveys. This does not prove Cressman to be wrong. He was searching for the geographical limits of the northern Great Basin culture, and it now appears that the northern limit may be the Columbia River. In fact, it has been reported (Cressman, oral communication, 1953) that Cressman found grinding tools in an early site on the south bank of the Columbia River near The Dalles, Oreg.

Where the materials from sites like Hat Creek fit in the picture, it is not possible to say. The culture of that period could not be called Plateau, for it was not adjusted to Plateau ecology. It supports Osborne's theory about the early prehistoric period:

> My present impression is that the Plateau was originally occupied by groups similar in culture to the Great Basin (the Plateau is, in many ways, little more than an extension of the Great Basin). [Osborne, 1951, p. 302.] [10]

Until Cressman's and Daugherty's new materials are studied, and other Early Man sites are excavated in the Plateau, the nature of Paleo-Indian culture in the area cannot be properly determined.

SUMMARY

Other than the comparison between the early levels of Hobo Cave and the Cold Springs site, it is not possible to discuss cultural developments elsewhere in the Plateau. The late prehistoric period, however, is well represented by sites all over the area. Tables 2 to 8, which were given for sites and regions in nearly every part of the Plateau, clearly indicate that the late prehistoric period was one of widespread uniformity of material culture. Some of the artifacts listed were crudely made and more or less generalized. Many of them, however, were highly specialized and of complex form.

It is the wide distribution of the specialized artifacts that is significant, for they are far less likely to have been independently invented. A large series of complex tools, which are similar in small detail, spread all over the Plateau, is substantial evidence of the homogeneity of Plateau culture in the late prehistoric period.

In addition to the list of artifacts common to the entire Plateau, others can be given which are almost as widespread. Lozenge blades vary slightly in shape from region to region, but are present in each.

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[10] See footnote 3, p. 164.

Sandstone shaft smoothers were found in every region except the Yakima valley. Bone beads and polished celts were recovered in every region except The Dalles. Hobo Cave did not give a rounded sample of material culture, but did have a large collection of projectile points. Side-notched points did not appear in the cave but were present elsewhere in the Plateau.

PLATEAU CULTURE IN THE EARLY HISTORICAL PERIOD

A survey of historical references to Plateau Indian culture is essential for several reasons. First, it establishes that certain items of material culture were used in certain ways, and, second, it gives a trait list for the historical period which can be compared with that of the prehistoric period. In view of changes that take place in material culture through time, it is vital that the culture described for the historical period be limited in its time span.

When the Plateau is spoken of as a culture area, reference is made not to present-day culture, but to culture of the period prior to European acculturation. Knowledge of the Plateau Area was first available when Lewis and Clark returned from their expedition in 1806. Fortunately, they were careful observers, and were not primarily interested in trade or religious conversion. Other travelers followed in rapid succession, and more than a few of them wrote of their experiences. It is difficult to determine just when the early contact period ended in the Plateau. Ray, in reference to the middle Columbia Basin, wrote:

> A few villages in the area had been abandoned as the result of white encroachment as early as 1880, but major displacements did not occur until after the turn of the century. [Ray, 1936, p. 99.]

This, however, has little bearing on the problem of acculturation. The disturbance of aboriginal Plateau culture began even before Lewis and Clark, at the time that European trade goods began to appear in quantity.

The earliest trade goods of European origin were glass beads and bits of copper. They were probably traded into the Plateau by other Indians who obtained them from eastern fur traders. The earliest post nearby was established at Nootka on Vancouver Island by John Meares in 1787 (Winther, 1947, p. 25). This would have given Plateau Indians a source of trade goods only 350 miles away. In 1791, Robert Gray entered the Columbia River in a ship named *Columbia.* He named the river after his ship, and traded extensively with the Indians (ibid, p. 25). Among the things he carried were copper sheets, iron bars, and buttons. It was about 1811 to 1812, when trade goods in large quantities began to reach the central part of the Plateau. At this time, parties from the post at Astoria (at the mouth of the Columbia River) traveled up and down the River, trading as they went (Thwaites, 1904–5, vol. 6). In 1818, Port Nez Percé was established near the mouth of the Walla Walla River, and other posts were soon scattered throughout the area.

By 1835, when the Rev. Samuel Parker toured the Plateau, it was rather clear that acculturation had taken place. His account is full of details of Indian life, although colored by religious philosophy (Parker, 1845). Parker's observations, several of which will be discussed later, lead to a conclusion that about 1835 to 1840 should mark the close of the early historic period. Parker, and soon afterward, Marcus Whitman, began to convert Plateau Indians away from their religion. Settlers, traders, and trappers, by this time, had begun to push the Indians around, and European tools and weapons had become common over most of the area.

By the 1840's, around the Hudson Bay posts:

> Schools for the native children are attached to all the principal trading posts, and particular care is extended to the education of the Half-breed children, the joint offspring of the traders and the Indian women, who are retained and bred, as far as possible, among the whites, and subsequently employed, when found capable, in the service of the company. The policy of course is obvious. The savage is gradually cured of his distrust and coaxed into new connections. He abandons the use of his bows, his arrows and all his former arms, and the result is that he soon becomes an absolute dependent upon those who furnish him his guns, ammunition, fish-hooks, blankets, etc. [Wilkes, 1845, p. 86.]

Therefore, as far as the present discussion is concerned, between 1835 and 1840 will be considered the end of the early historic period and the "ethnographic present." The following quotations and comments will apply to that period, beginning in 1805 and ending about 1835 or 1840.

SEASONAL MIGRATION

None of the writers on Plateau archeology have properly evaluated the effect of seasonal migration on archeological sites. There is evidence to show that practically all of the Plateau Indians made seasonal migrations in order to avail themselves of different kinds of food. In 1805, Lewis and Clark wrote of the Nez Percé:

> During the summer and autumn they are busily occupied in fishing for salmon and collecting their winter store of roots. In the winter they hunt the deer over the plains, and towards spring cross the mountains to the Missouri for the purpose of trafficking for buffaloe robes. [Hosmer, 1905.]

Seasonal migration was noted in the same area by another observation:

> The spot where we landed (on the Snake River) was an old fishing establishment, of which there remained the timbers of a house carefully raised on scaffolds . . . the property of the Indians who still remained in the plains hunting the Antelope. [Biddle, 1904, vol. 2, p. 185.]

On the Columbia River among the Tenino Indians the following spring, they noted:

> Since we left them in the autumn they have removed their village a few hundred yards lower down the river, and have exchanged their cellars in which we then found them, for more pleasant dwellings on the surface of the ground. They are formed by sticks and covered by mats and straw. . . . [Ibid., vol. 2, p. 63.]

By the time they had arrived in Nez Percé territory again:

> The salmon not having yet called them to the rivers, the greater part of the Chopunnish (Nez Percé) are now dispersed in villages through this plain, for the purpose of collecting quamash (camas) and cows (kouse). [Biddle, 1904, vol. 2, p. 83.]

There are numbers of references by other observers in the area, all pointing to seasonal shifts in habitation which meant the movement of the entire village. Even as late as 1885, the pattern was still being followed by some Nez Percé on the lower Snake River. According to one of the writer's informants, an early settler, the Nez Percé used to spend the winter in the river bottom and move out in the spring. Ray summed it up as follows:

> On the whole, Plateau life involves wintertime occupancy of river villages and summertime camping at fishing, berrying and root digging spots. [Ray, 1939, p. 14.]

What would be the effect of seasonal migration on the archeological record? One result would be found in architecture, since only the semisubterranean pit houses would be preserved. The summer mat house would leave little or no trace after a few years. It is possible that the multiple floor levels found in the house pits at Cold Springs, Techumtas Island, and elsewhere are records of year-to-year occupation. After the pit became too shallow, it may have been cleaned out, and some of the floor levels may record only one winter's occupation. Doubtless, the seasonal migration pattern is an old one in the Plateau, for the Indians held to it long after other customs had disappeared. There is no way of determining how far back in time the custom was followed.

ARCHITECTURE

One of the best descriptions of Indian dwellings in the Plateau was also the earliest. In the spring of 1805, near the mouth of the Snake River, Lewis and Clark wrote:

> The houses of the Sokulks are made of large mats of rushes, and are generally of a square or oblong form, varying in length from fifteen to sixty feet, and supported on the inside by poles or forks about six feet high: the top is covered with mats leaving a space of twelve or fifteen inches the whole length of the house, for the purpose of admitting light and suffering the smoke to pass through: the roof is nearly flat . . ., and the house is not divided into apartments, the fire being in the middle of the large room and immediately under the hole in the roof; . . . [Biddle, 1904, vol. 2, p. 189.]

The explorers also mentioned a Nez Percé sweat lodge, racks for drying fish, deep pit houses near The Dalles, Oreg., and a large burial vault on the Columbia River.

There is no early record of winter houses for the northern Plateau but summer mat lodges were described. In 1811, at the mouth of the Sanpoil River and near the present site of Grand Coulee Dam, David Thompson observed:

> Their huts are of slight poles tied together, covered with mats of slight rushes. [Sperlin, 1913, p. 8.]

Farther downstream he mentioned a Wenatchee hut which was 209 yards long.

MATERIAL CULTURE

Actual descriptions of articles of material culture are rare in the early reports. Some of the closest observations were made of clothing which, being perishable, was not recovered in the archeological excavations. Lewis and Clark, in 1805, noted that the Indians near the mouth of the Snake River wore buffalo or elk-skin robes, beads and feathers, leggings, and moccasins. Also:

> The dress of the women is more simple, consisting of a long skirt of argalia or ibex skin, reaching down to the ankles without a girdle: to which are tied small pieces of brass and shells and other small articles. [Biddle, 1904, vol. 2, p. 174.]

Stone mallets were apparently observed by Clark just above the mouth of the Snake River in 1805. He wrote:

> He began by bringing in a piece of pine wood that had drifted down the river, which he split into small pieces with a wedge made of the elk's horn, by means of a mallet of stone curiously carved. [Ibid., p. 192.]

About the same time, Lewis mentioned a group of articles:

> The rooms are ornamented with their nets, gigs and other fishing tackle as well as the bow for each individual, and a large quiver of arrows, which are headed with flint stones. [Ibid., p. 189.]

Bows and arrows were described by Henry, as of the year 1811. His remarks apply to the Plateau Indians in general:

> The bows used by the natives W. of the mountains are neatly made, and of three kinds—the horn, the red cedar, and the plain wooden bow. The horn bow is made of a slip of ram's horn. . . . overlaid with several successive layers of sinew. . . . The red cedar bow is made of a slip of that wood overlaid with sinew and glue. . . . The plain wooden bow is of cedar, willow, or ash . . . it is well smoothed but not so much esteemed by the natives. . . . [Henry and Thompson, 1897, p. 713.]
>
> The arrows are much longer than those of our Indians E. of the Mountains, being nearly three feet, very neatly made, slim pointed, and well feathered; they are usually tipped with flint, but of late iron has been secured for that purpose. [Ibid., p. 714.]

While there is no description of dice, John Work, in 1825, near the present city of Lewiston, Idaho, noted that:

> There are about our camp near 250 or 300 Indians. . . . they pass the greater part of their time gambling, horseracing & footracing. [Work, 1825, p. 94.]

In a burial vault on an island in the Columbia River, Lewis and Clark saw an array of grave offerings:

> From the different boards and canoes which formed the vault, were suspended on the inside fishing nets, baskets, wooden bowls, robes, skins, trenchers, and trinkets of various kinds, . . . [Biddle, 1904, vol. 2, p. 204.]

In passing, references to artifacts are rather common. The early journals frequently speak of baskets, pipes, bows and arrows, canoes, stone hatchets, and stone knives; but no details are given.

BURIAL

Lewis and Clark made several references to Indian burials. In the spring of 1805, they noted:

> The dead are wrapped up in robes of skins, and deposited in graves, which are covered over with earth and marked or secured with little pickets or pieces of wood stuck promiscuously around it. [Biddle, 1904, vol. 2, p. 178.]

Thirty years later, in the same vicinity, Parker wrote:

> The grave was two feet deep. A mat was laid in the grave, and the body was wrapped in a blanket. A horn cup and a spoon was placed in it, and a mat of rushes above and then it was filled in. [Parker, 1845, p. 285.]

Another kind of disposal was that of the burial shed or vault. On Blalock Island, some 30 or 40 miles west of the McNary Reservoir, Lewis and Clark visited one of the vaults:

> This place in which the dead are deposited is a building about sixty feet long and twelve feet wide, . . . so as to form a shed. We observed a number of bodies wrapped carefully in leather robes, and arranged in rows on boards . . . and in the center of the building was a large pile of them heaped promiscuously on each other. [Biddle, 1904, vol. 2, p. 203.]

These vaults were seen in later years, and had been so thoroughly robbed by collectors that no trace of the burials remains.

ECONOMY

Various journals mention the gathering of roots and berries by Indians all over the Plateau. Camas (*Camassia* sp.) and kouse (*Lomatium caus*) were staples. At one time or another, all of the early travelers subsisted on these tuberous rooted plants which grew in marshy lowlands. There are no details available on how these roots were gathered in the early historical period. Later on, it was noted that digging sticks and baskets were employed.

Preparation of food in the early historic period has been described (see p. 185, on earth ovens), but little mention was made of artifacts used for that purpose. Most of them must have been of a perishable nature, for no containers are found. Pestles are not rare, but no mortars have been recovered. If baking and roasting had been extensively used, containers would not have had to be plentiful. Most of the stone bowls that have been found have been far too small to have been used for cooking but may possibly have been used for serving. Almost any of the stone tools that have been classified as hammers and choppers could have been used in pounding roots, berries, and meat. Apparently many of the artifacts used for preparing food were either made of perishable materials or were of a generalized tool form.

Details are rare on hunting techniques although frequent mention is made of Indians engaged in that activity. Apparently the Plateau Indians employed techniques that were common over most of North America. They used disguises such as skins of animals (Thwaites 1904–5, vol. 3, p. 297), and such tactics as surrounding, driving and running down game on horseback (ibid., p. 316).

Fishing is well documented all over the Plateau in the early historical period. One of the most detailed descriptions is from Lewis and Clark in 1806, near the mouth of the Walla Walla.

> Near our camp is a fish-weir, formed of two curtains of small willow switches, matted together with withes of the same plant and extending across the river in two parallel lines, six feet asunder. These are supported by several parcels of poles in the manner already described, as in use among the Shoshonies, and are either rolled up or let down at pleasure for a few feet, so as either to suffer the fish to pass or detain them. A seine of fifteen or eighteen feet in length is then dragged down the river by two persons, and the bottom drawn up against the willows. They also employ a smaller seine like a scooping net, one side of which is confined to a semicircular bow . . . . [Biddle, 1904, vol. 2, p. 80.]

While the bulk of the fish taken were probably captured with seines or dip nets, some were speared and others were taken by angling. Spear tines have been recovered in all regions of the Plateau, but no archeological evidence of hook and line has been recovered in the McNary region. Angling was reported at least twice in the region that is now within the McNary Reservoir. In 1806, Lewis and Clark described the use of a gorge hook:

> Soon after we halted, an Indian boy took a piece of bone, which he substituted for a fish-hook, and caught several chub, nine inches long. [Ibid., p. 74.]

Again, in 1811, just above the mouth of the Snake River, Ross described an Indian fisherman:

> For this purpose, the fisherman cut off a bit of his leather shirt, about the size of a small bean; then pulling out two or three hairs from his horse's tail for a line, tied the bit of leather on one end of it, in place of a hook or fly. Thus pre-

> pared, he entered the river a little way, sat down on a stone and began throwing the small fish, three or four inches long, on shore, ... [Thwaites, 1904, vol. 7, p. 142.]

There is no doubt that by the beginning of the early historical period, the Plateau Indians were well versed in the art of taking fish. Nets, traps, spears, and angling were all used with skill.

It is not clear just where horses fitted into Plateau economy. There is little question but that the first Plateau horses came from the Shoshones. Haines' research on the subject showed clearly that the Shoshones were responsible for the transfer of horses both to the north and to the northeast of their territory (Haines, 1938, p. 453). Haines quotes the narrative of an early explorer to demonstrate that the first horses reached the Plateau about 1735. This date is acceptable for the first acquisition of horses, but there is good reason to believe that they did not become numerous or important to the economy until 50 years or more later. Horses were seen among the Walla Walla Indians at the mouth of the Snake River in 1805. Lewis and Clark noted that —

> The sokulks possess but few horses, the greater part of their labours being performed in canoes. [Biddle, 1904, vol. 2, p. 191.]

Yet only a few years later, in 1811, Ross visited the same vicinity and observed:

> The plains were literally covered with horses, of which there could not have been less than four thousand in sight of the camp. [Thwaites, 1904, vol. 7, p. 138.]

What seems to have taken place is a rapid buildup in numbers between 1805 and 1811. The increase would probably have to be attributed to raids rather than to natural multiplication. At any rate there is no direct evidence of many horses in the Plateau until 1811.

The archeological picture is much the same. Horse bones have been found in a number of Plateau sites, particularly in the McNary Reservoir. Osborne pointed out that in no case were horse bones found in prehistoric sites, but they were present in two late sites (Osborne, 1953, p. 262). In the two sites mentioned by Osborne, 45–BN–3 and 45–BN–6, there also were large numbers of glass beads, copper, and iron. Sites 454–BN–53 and 35–UM–17, which appear to be slightly earlier, contained no horse bones. This small amount of evidence tends to show that the archeological record of the appearance of the horse is little if any earlier than A.D. 1800.

Returning to Haines' statement regarding evidence of the horse in the Plateau by 1735, it should be noted that this observation was partly based on a statement made to David Thompson in 1787 by an Indian whom he estimated to be 75 or 80 years old (Haines, 1938, p. 435). If the Indian, who recalled seeing horses in his youth had been a little younger than Thompson's estimate, and if his memory had not been of the best, the first occurrence of horses may have been nearer 1750 than 1735. This later date tends to fit better the archeological and ethnological evidence.

Travel on horseback did not, however, replace canoe travel, for Parker noted:

> My three Indians were well acquainted with the river and the art of managing the canoe. [Parker, 1845, p. 133.]

Trade in the Plateau was most important at The Dalles, a situation recognized to date from prehistoric times. The Americans and the British, however, came out to meet the Indians. They established posts in various parts of the Plateau, and traveled up and down the rivers, trading as they went. The fur trade, which began on the coast in 1790 and in the Plateau by 1810, did not last much beyond 1830.

CEREMONY

Several ceremonies were witnessed by the early travelers, but only a few of them were described in any detail. The use of burial goods has been cited, and it conforms to archeological patterns. Evidences of other ceremonies however are less easy to recover archeologically. The "first fruits" ceremony was observed by Lewis and Clark in 1806. They wrote:

> The whole village was filled with rejoicing today at having caught a single salmon, which was considered as the harbinger of vast quantities in four or five days. [Thwaites, 1904–5, vol. 4, p. 302.]

Puberty rites were also recorded for the early historical period. In 1806, Lewis and Clark wrote:

> The daughter of the man is now about the age of puberty, and being incommoded by the disorder incident to that age, she is not permitted to associate with the household or kitchen furniture, or to engage in any occupation. [Ibid, p. 89.]

Lewis and Clark also mention several dances, but failed to describe them fully or to determine their function.

CONCLUSIONS

The argument over whether the Plateau should be considered a separate culture area or a peripheral area is not merely academic. It is not dependent entirely on the definition of what a culture area should entail, but on an understanding of Plateau Culture and Plateau Culture History. Certain misconceptions in the past have caused a few anthropologists to overemphasize extra-areal influence on the Plateau. One of the first to disparage the individuality of the Plateau was Spinden, who characterized the Plateau from his observations among the Nez Percé. He wrote:

> The culture of the Basin area, as shown by one of its representative tribes, was purely a transitional culture. Its elements were drawn in nearly equal proportion from the Plains and from the Pacific Coast. Only a small residuum autochthonous ideas are found when the borrowed ones are excluded. [Spinden, 1908, p. 270.]

Such an extreme view was not shared by Spier, who refuted the importance of the overlay of Plains traits.

> There can be little doubt that much, if not all the overwhelming part of the Plains Traits among them (Nez Percé), dates only from the introduction of the horse into the Snake-Columbia basin sometime between 1750 and 1800. [Spier, 1930, p. 40.]

In addition to the fact that the list of traits from the Plains is of recent acquisition, there is another consideration. It seems to be common practice in the space-time consideration of traits, to look for sources. If a trait appears in a relatively unknown area, someone always seeks to trace it to an adjacent area which happens to be better known archeologically and ethnologically. This is done in spite of a complete lack of any information on how old the trait may be in either area. Some of the Plains traits in the Plateau can be shown to be recent, and to have been derived from that area. The horse, gun, tribal organization, honors by war achievement, and the elbow pipe have been proved to be of Plains origin (Ray, 1939, pp. 14, 146).

Kroeber apparently was not willing to concede that the Plateau was an authentic culture area. He considered it to be a hinterland of the Northwest Coast and influenced by the Plains Area since—

> . . . the relatively poor subsistence conditions and consequent low level of culture along the Columbia and Snake would have strained out many of the more specialized traits, and most of all of the luxury developments, of both eastern and western culture. [Kroeber, 1931, p. 37.]

There is no doubt, now, that Kroeber made two mistakes. Since there were few data available on the culture of the Plateau, he assumed that it did not exist, except on a very low plane. Secondly, he was apparently misled by Boas' glowing descriptions of Northwest Coast culture. Beyond the spectacular "potlatch" ceremony, the large plank houses with elaborate wood carving, and the seagoing canoes, the Northwest Coast had only a few high cultural attainments, and these were restricted to a minority of coastal peoples, the Haida, Tlingit, and a few others. Most of the Plateau ceremonies were never recorded for comparison. Lacking wood over most of the Plateau, the Indians did not develop carving or elaborate houses.

Whether they did or did not, does not affect the question at hand. Relative attainment of culture is not involved, only classification. If Wissler's concepts were followed no one would question the fact that the Plateau was a true culture area during the "ethnological present," the era referred to here as the early historical period. The problem has been to determine what the cultural situation was in prehistorical times. Can this be done through the historical approach to archeology?

From the data presented in the body of this paper, certain significant points may be made concerning the Plateau, both prior to and subsequent to European contact. Thus, in the late prehistoric period:

1. Cultural development leading up to the late prehistoric period was measured progressive.
2. Material culture was uniform.
3. Economy was similar over the entire area.
4. Influences from outside the area were much less important than in the early historic period.

Similarly, in the early historic period:

1. Plains traits were encroaching on the southeastern part of the Plateau.
2. Northwest Coast traits were influencing the southwestern part of the Plateau.
3. Influences from both areas were recent and superficial.
4. Political organization was homogeneous.
5. Social organization was uniform.
6. Material culture had widespread similarities.
7. Economy was the same over the whole area.

In order to present the data with which the nature of Plateau culture can be discussed, it is necessary to review the sources from which they were derived. The new materials, from which much of the discussion has been drawn, are the results of excavations and surveys performed by River Basin Survey between 1947 and 1952. From these materials, it was possible to construct a local sequence for the McNary region, and present a reasonably complete picture of Indian life during the late prehistoric period. By "reasonably complete" it goes without saying that no archeological reconstruction can really be complete.

Comparative archeological data were drawn from nearly every section of the Plateau, north, east, and west of the McNary Reservoir. The most useful data were those obtained from a series of excavations in a single region; as, for example, the work at The Dalles, by Strong, Schenck, and Steward (1930), and that of Collier, Hudson, and Ford (1942) on the Upper Columbia River.

The local sequence developed for the McNary Reservoir does not begin with Early Man. Paleo-Indian sites are present in the Plateau, but have not been found in the McNary region. The earliest culture in that region seems to bear a resemblance to the culture of the Great Basin. It was surely nonsedentary and more adjusted to hunting than to fishing or gathering. The fact that fish and shellfish were eaten indicated that some adjustment to Plateau ecology had been made. After a heavy fall of volcanic ash, members or descendants of the same culture took up residence at Cold Springs. At this time specialized fishing tools began to be made, and a suitable house type was constructed. From that time, up to about 1800, and the appearance of Europeans, the material culture became more diversified and complicated. Highly specialized tools, houses, fishing apparatus, and burial procedures were adopted. European tools and ornaments did not immediately replace those of the Indians, but after 1805 no new aboriginal innovations appeared. Elaborate stone carving was probably a late development elsewhere in the Plateau, but it never became popular in the McNary region.

The local sequence in the McNary region, even though dates are not available, shows a gradual development from simple to complex. Although there seemed to be two horizons in which a number of new artifacts appeared, at Cold Springs and again at the beginning of the late prehistoric period, there is no reason to believe that cultural changes of a revolutionary nature took place. There is no evidence of a migration or of a new culture appearing on the scene. The persistence of old artifact types and the gradual acquisition of new ones tend to confirm a local development of culture.

Turning to the Plateau in general, it was found that only for the late prehistoric period, was there comparable material culture. Architecture could not be treated, for house remains had not been excavated in other regions. Material culture trait lists, comparing other regions of the Plateau with the McNary region, found much in common in every case. Not only were the artifacts of nearby sites similar, but also those of British Columbia, 350 miles away. Close approximation in simple generalized artifacts might be expected, whatever the cultural situation. A wide distribution of complex and specialized artifacts, however, requires some explanation. The following lists give specialized and unspecialized artifacts that are more or less typical of the Plateau during the late prehistoric period. Not every type is typical of every region, however.

Generalized Artifacts

Cobble hammers
Cobble choppers
Lap stones
Stone bowls
Side-notched points
Leaf-shaped blades
Shouldered points
Corner-notched points
Polished pestles
Spall knives
End scrapers
Splinter awls
Polished awls
Bone beads
Marine shells

Specialized Artifacts

Grooved net weights
Notched net weights
Discoid choppers
Shaft smoothers
Lozenge blades
Polished celts
Mallets
Hoes
Tubular pipes
Fish spear tines
Digging stick handles
Horn wedges
Bone dice
Bone whistles

If information on architecture and burial customs were available, the table would probably be much larger. The distribution of chipped-stone fetishes may have been Plateau-wide, but they were probably not recognized by the earlier workers in the area. The least that can be said of the table is that it shows close internal consistency in the Plateau, as far as material culture is concerned.

It was possible to make inferences on aboriginal economy from two sides, the artifacts recovered and the bones of fish and animals that were used for food. Every region in the Plateau showed, where data were available, that hunting, fishing, and gathering were of nearly equal importance. No region showed any significant departure from the pattern.

The early historical period in the Plateau was one of disturbance. European fur traders were active over the entire area and some influence, especially in art forms, was being felt from the Northwest Coast. Plains influence, which probably began about 1750, has been much discussed. The traits which accompanied this influence were those associated with the horse and gun. They included tribal organization, status and chieftainship achieved by success in war, and Plains-type warfare.

Actually, by the time that Plains traits reached the Plateau in strength, European acculturation had also taken place. Ray, in his thorough analysis of Plateau cultural relations, found strong Plateau individuality in the northern and central portions of the area (Ray, 1939, p. 13). Plains-type political organization was found among the southern tribes, but weakly developed. Coastal influences, in the form of rank and caste attitudes, had been accepted only among the Indians of the southwest corner of the Plateau. The central Plateau Indians were completely opposed to warfare, and those of the far north had no knowledge of Plains-type warfare.

According to Ray, political organization of the Plateau was based on village autonomy (ibid., p. 4). Chieftainship was determined by heredity, and social equality was the ideal. Pacifism was typical of the entire Plateau, until a few of the eastern tribes began to adopt some of the traits of typical Plains warfare.

Ray's analysis of political and social organization in the Plateau demonstrates, beyond any doubt, the individuality of Plateau culture. He concludes:

> The plateau is seen to possess distinctive character in its own right. Many aspects of culture which are integral to its organization are not to be found in adjacent areas. This indicates both the individuality of the area and the relatively slight influence which the region has exerted upon neighboring areas. This is not to deny the existence or importance of cultural elements of foreign origin. The Plateau has borrowed much from the Coast and it has taken much from the Plains but the importance of coastal influence has probably been over-

> rated, and diffusion from the Plains is in large part recent and superficial. [Ray, 1939, p. 145.]

The refutation of Spinden's speculation on the peripheral nature of Nez Percé and the other Plateau cultures was a matter of the application of new data to the problem. Kroeber's concepts regarding the Plateau stemmed partially from the lack of data and partially from an undue emphasis on cultural attainments.

If the impressions of early European visitors to the area can be accepted, the people in the Plateau had physical and cultural traits which distinguished them as a group; traits which set them apart from the Northwest Coast, the Northern Great Basin, and the Western Plains. Lewis and Clark, and Parker noticed these traits, and commented on them long before anyone developed the concept of culture areas. The most outstanding of these traits, according to Parker were: (1) nonsedentary life among the Plateau people as opposed to the coast; (2) high standard of living as opposed to the poverty of the Basin Shoshoni; and (3) general cleanliness and health as opposed to both Basin and Coast (Parker, 1845, pp. 130–140). The economic pursuits of fishing and gathering were sufficient for Parker to differentiate between the Plateau and the Plains Indians. These and other Europeans also remarked on the uniformity of dress, tools, economic pursuits, and religion.

With the information now available it should be clear that the Plateau in early historic times was a distinct culture area. It had uniformity of both climatic and cultural traits and it contrasted with adjacent areas.

The homogeneous state of Plateau culture in the early historic period must also have existed in the late prehistoric period. As widespread and identical as were the patterns of political and social organization, it is impossible to conceive of a situation any different only a few years earlier. It is true that in a hundred years the Plains Area changed into a relatively homogeneous culture area, but that area was unified by the horse, the gun, and Plains-type warfare. In the Plateau, pacifism was the ideal, and no such unifying force could have existed. Without the influence of Plains traits, the Plateau in the late prehistoric period was certainly more clearly a culture area than it was in the early historic period.

If, by definition, a culture area should have homogeneity of culture and climate, as well as a distinct culture history, the Plateau certainly qualifies. The excavations made by River Basin Surveys demonstrated how the Indians of one region progressed from a relatively simple hunting and gathering economy to one far more complex. During this period, the inventory of material culture grew by addition and diversification, and a superior adjustment to the environment was made. Throughout the span of time that was recorded by the McNary sites, there was demonstrated a conservativeness on the part of the local inhabitants. New artifacts were constantly added, but the older tools that seemingly should have been replaced were not readily abandoned. This reticence to drop the apparently obsolescent tools does not indicate a people who were dependent upon outsiders for their culture. They were not entirely receivers of ideas. Indeed, it can be shown that the most characteristic artifacts of the Plateau were probably indigenous, and that the adjacent areas may well have drawn on the former for a significant amount of their material culture. Plateau material culture in the late prehistoric period, in spite of small local variations, was homogeneous over the entire area and the influences from the Northwest Coast and the Plains had not yet made significant penetrations of the area.

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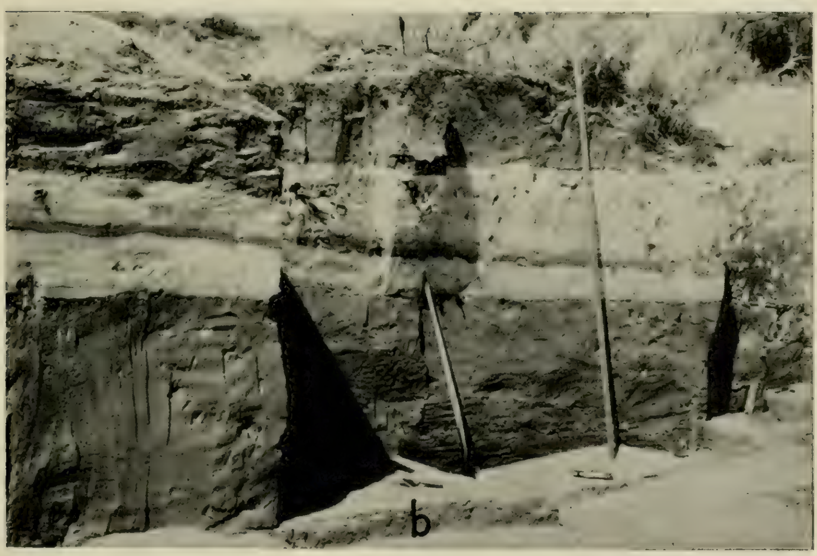
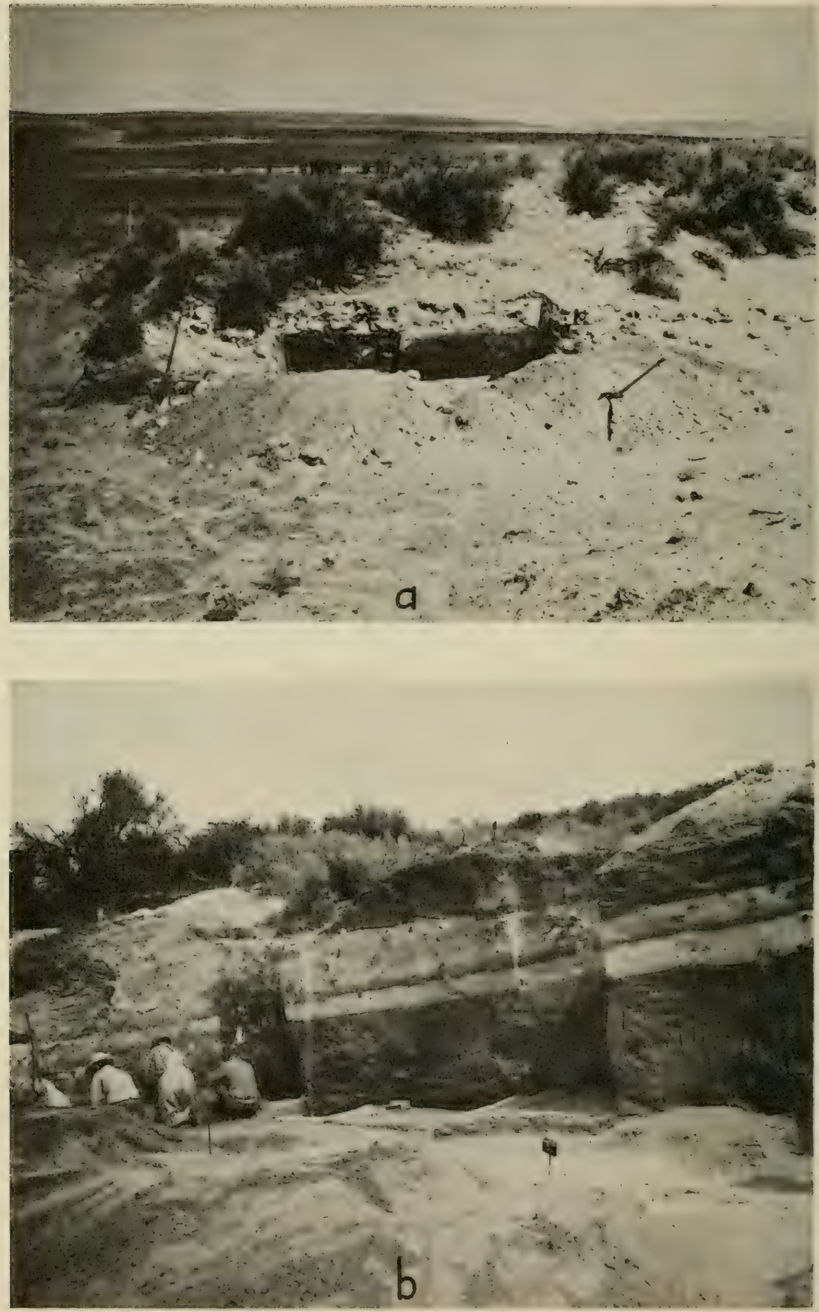
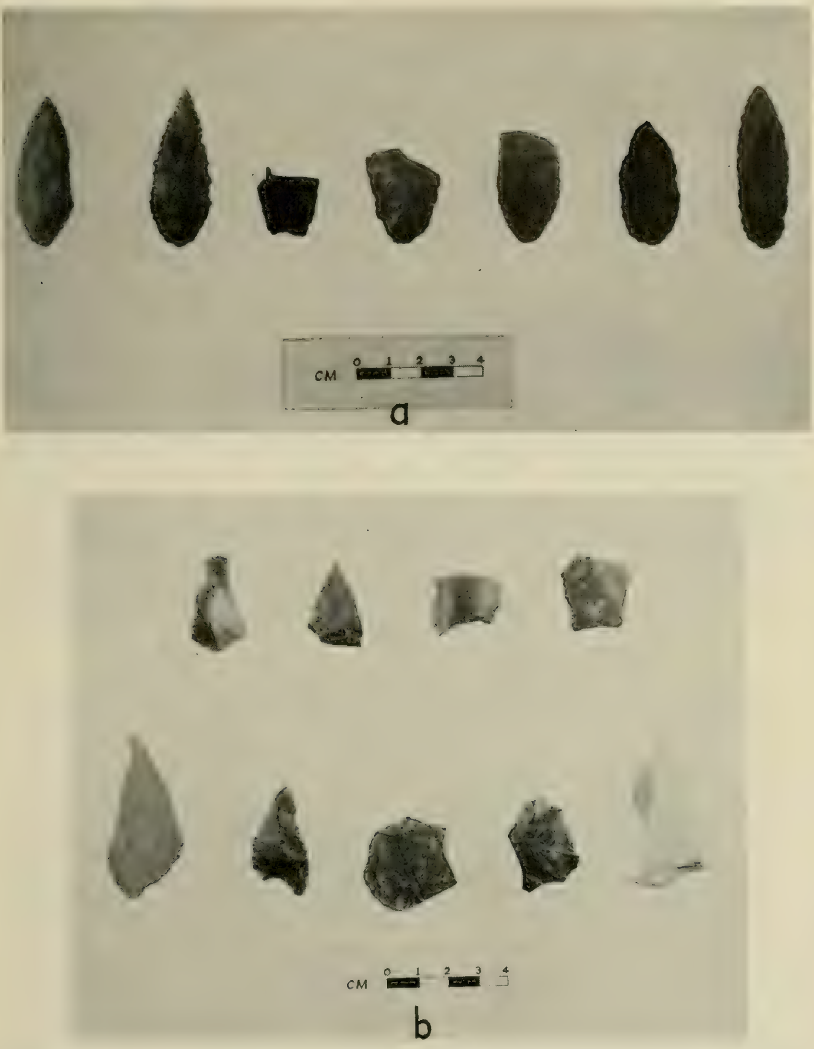


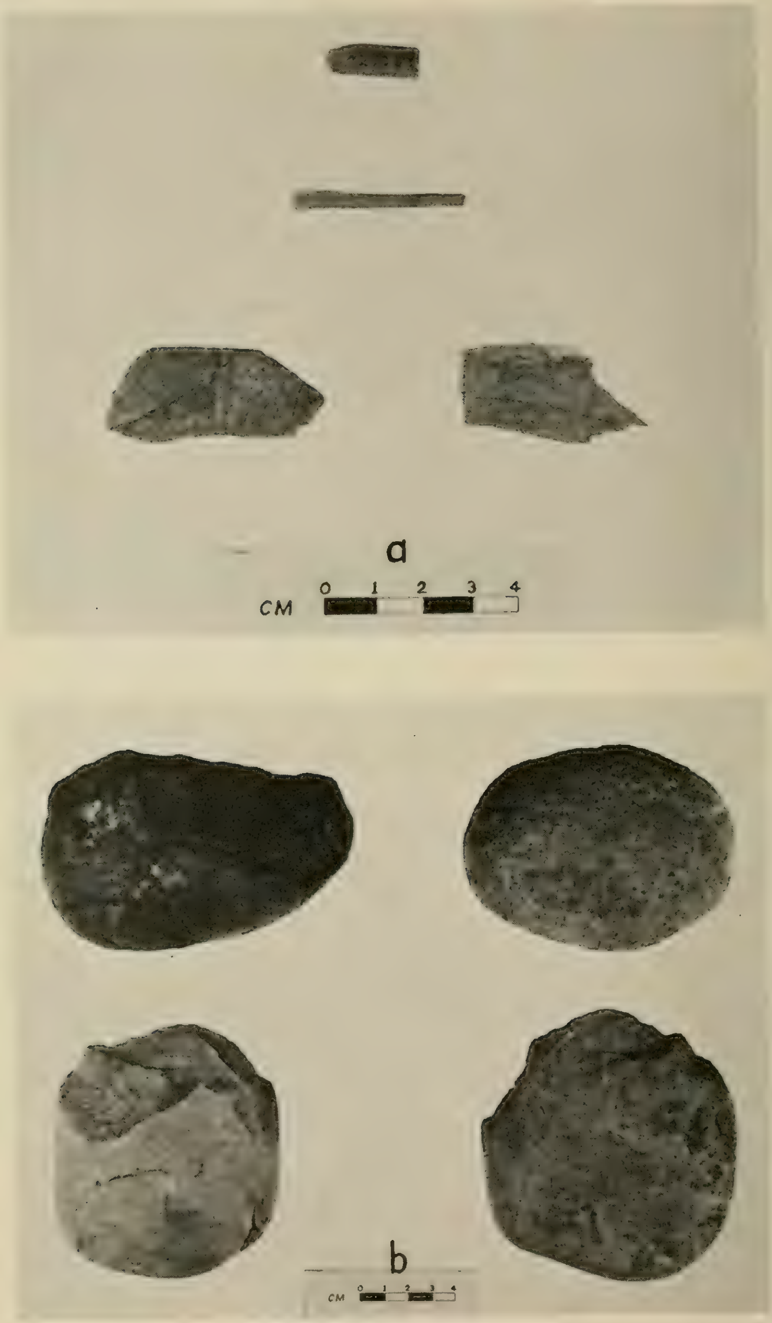
a, Workmen measuring artifact location. *b*, Volcanic ash at Hat Creek (35–UM–5).



a, Ash stratum at site 35–UM–3. *b*, Ash stratum at Hat Creek (35–UM–5).


CM 0 1 2 3 4
a
CM 0 1 2 3 4
b

a, Projectile points, Hat Creek (35–UM–5). *b*, Flake scrapers, Hat Creek (35–UM–5).


a
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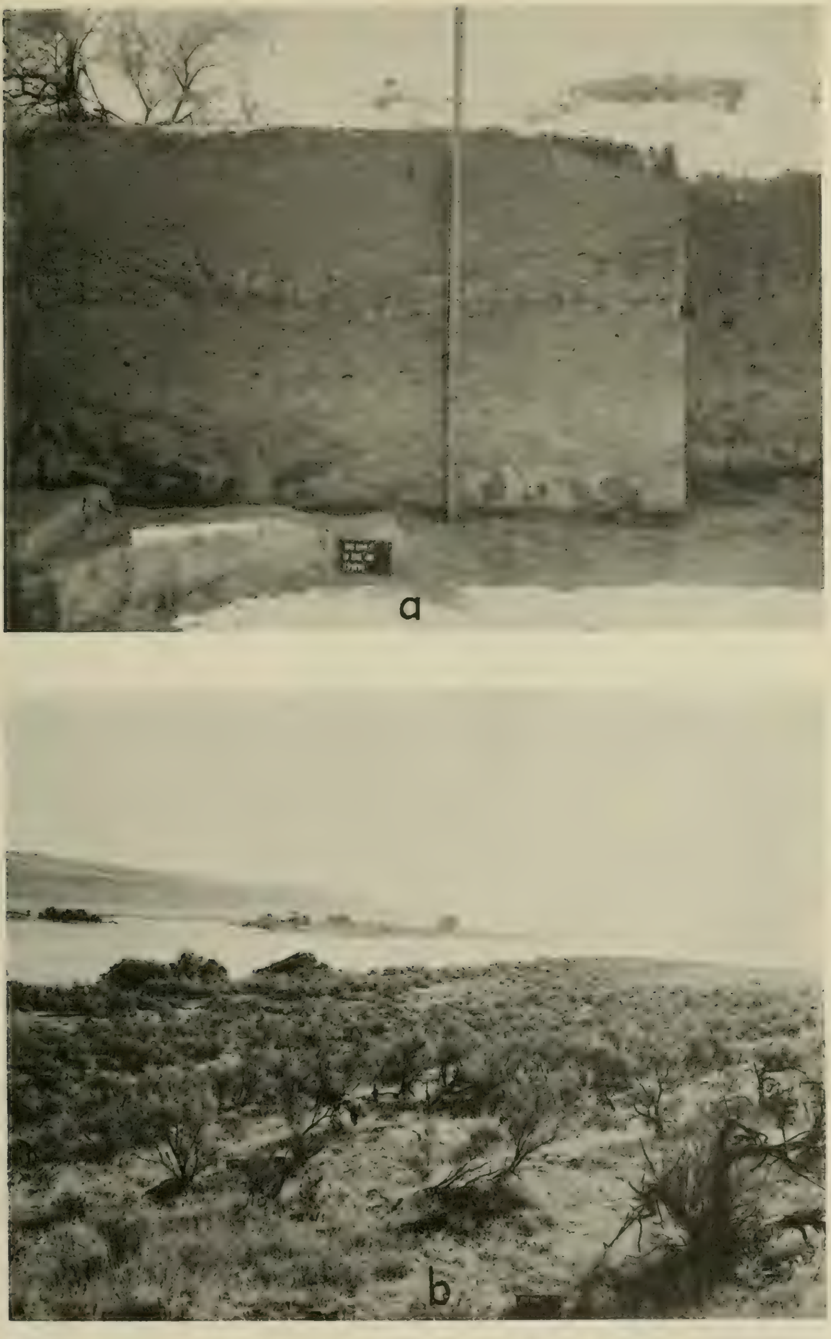
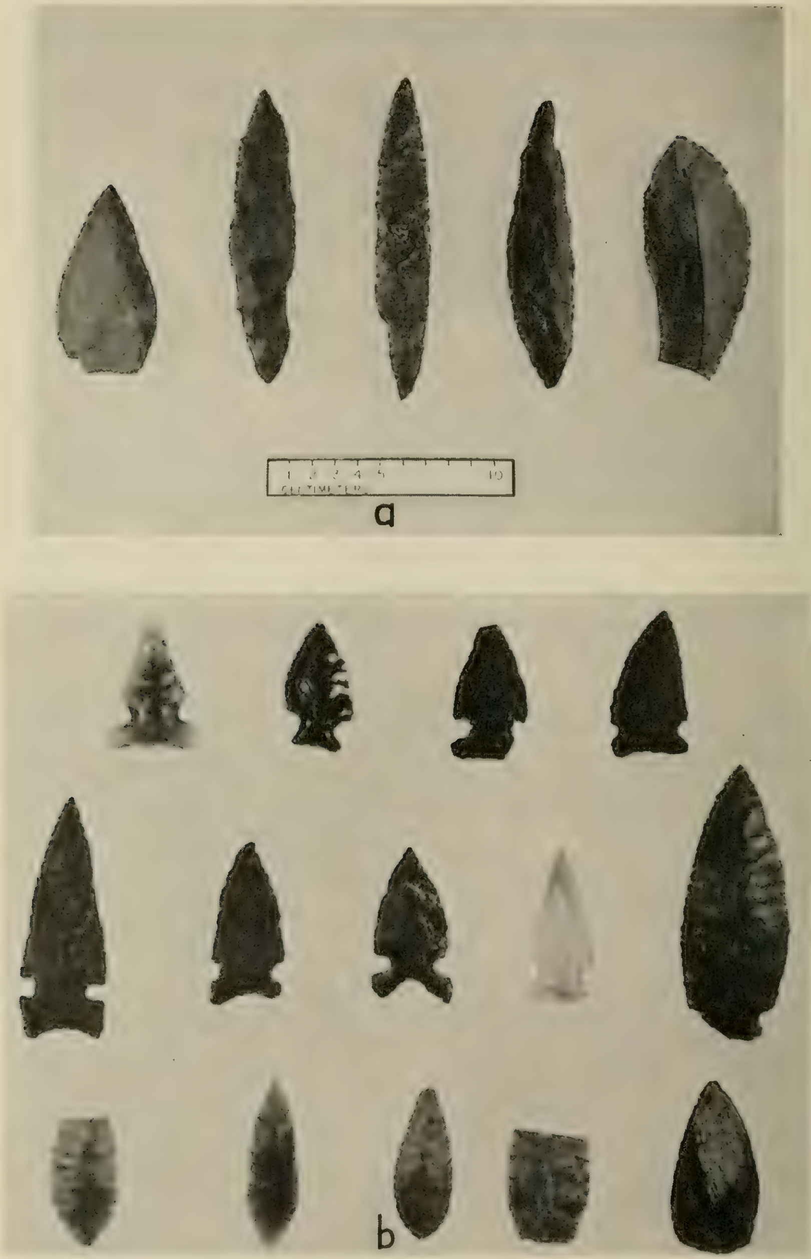
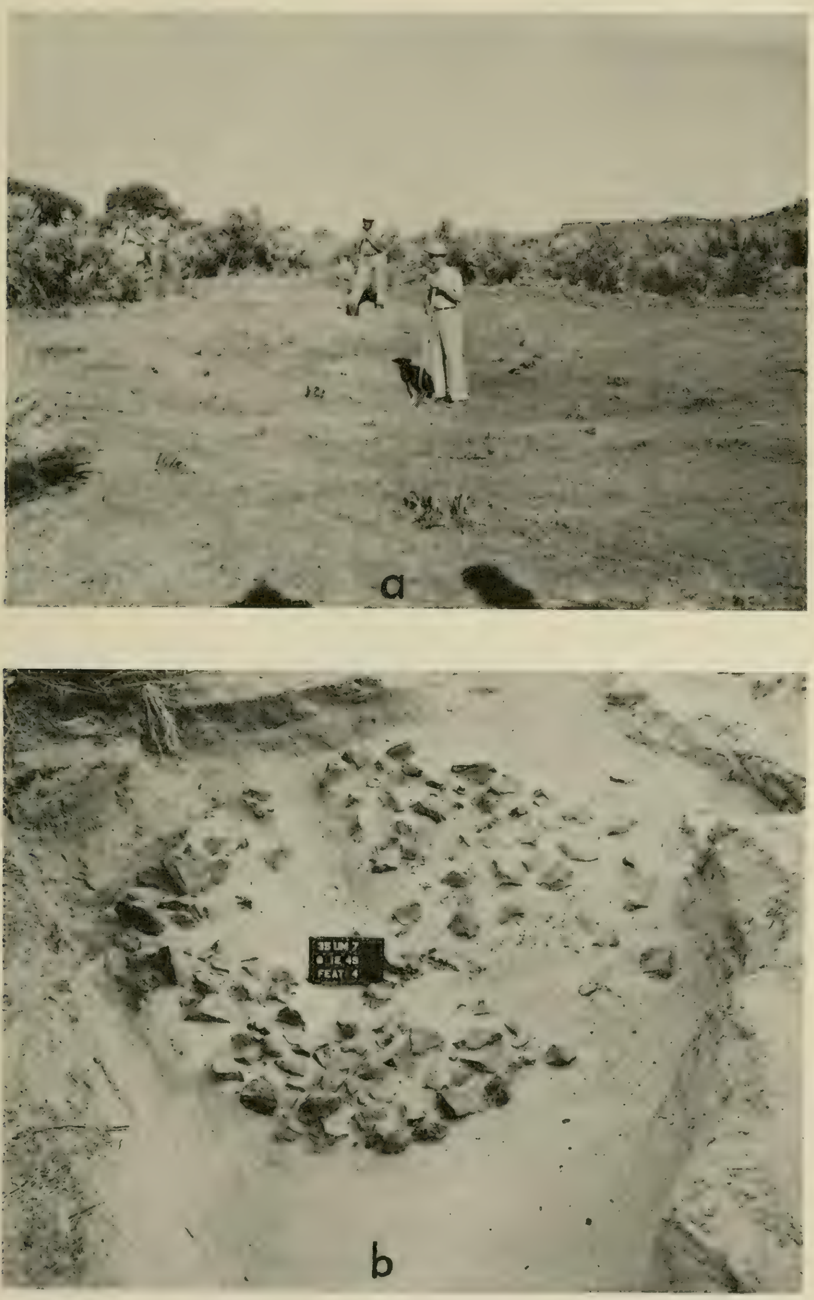
a, Carved bone, Hat Creek (35–UM–5). *b*, Hammers and choppers, Hat Creek (35–UM–5).



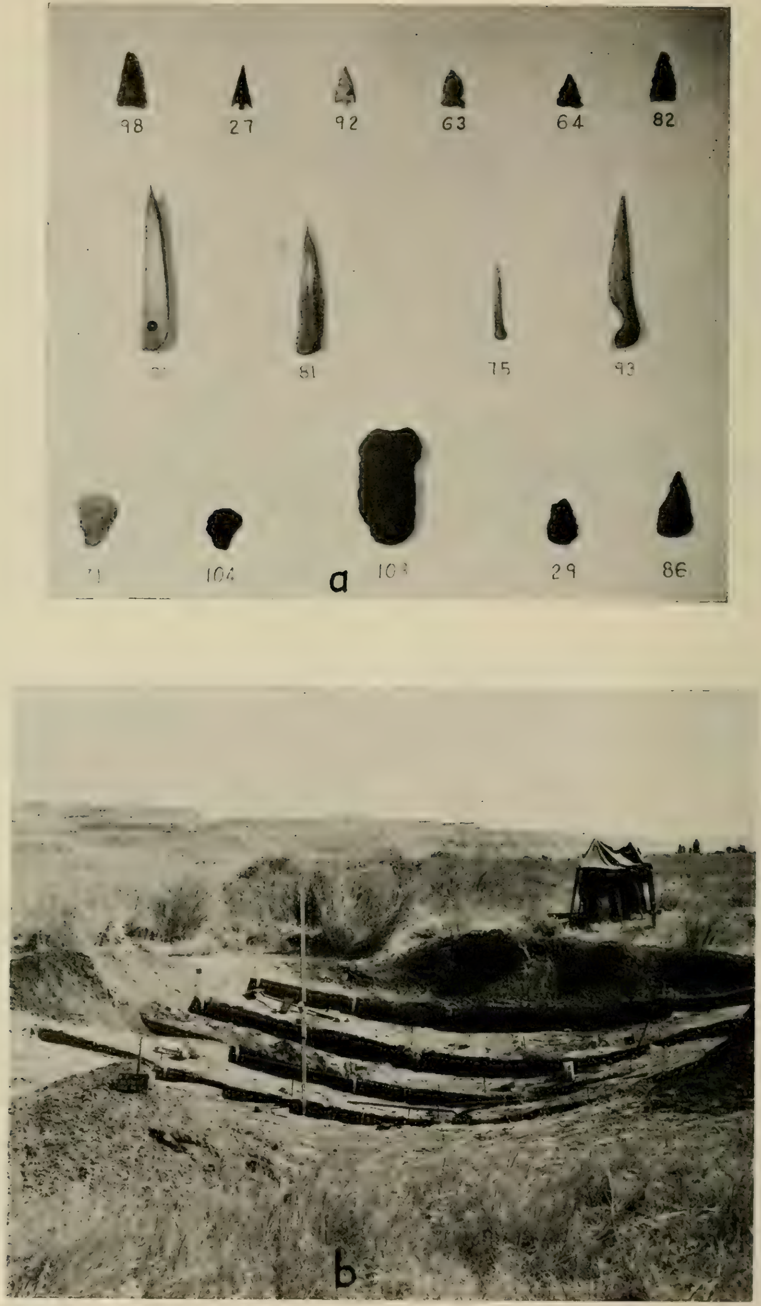
a, Shell stratum in profile, Cold Springs (35–UM–7). *b*, View of terrace, Cold Springs (35–UM–7).


1 2 3 4 5 10
CENTIMETERS
a
b

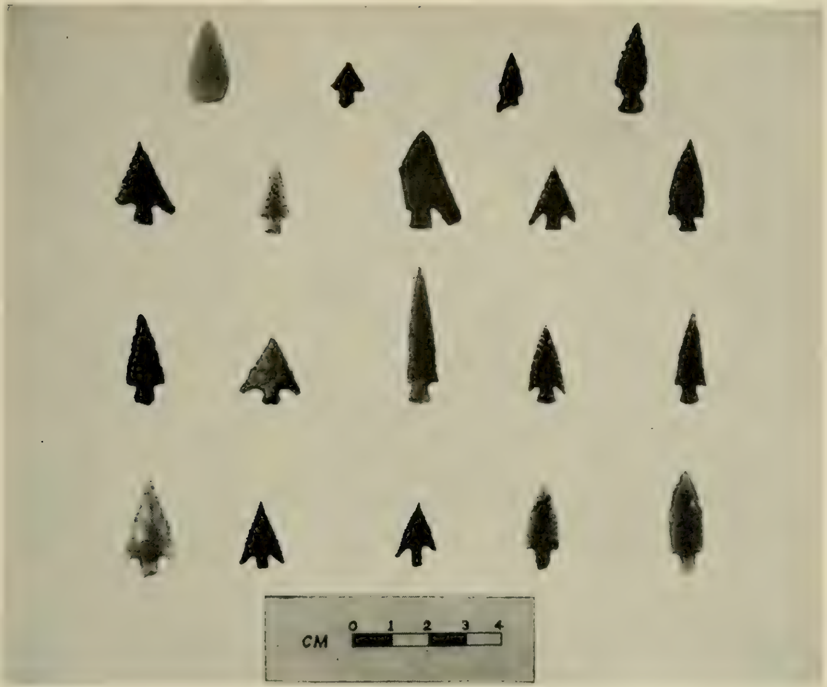
a, Stone knives, Cold Springs (35–UM–7). *b,* Projectile points, Cold Springs (35–UM–7).



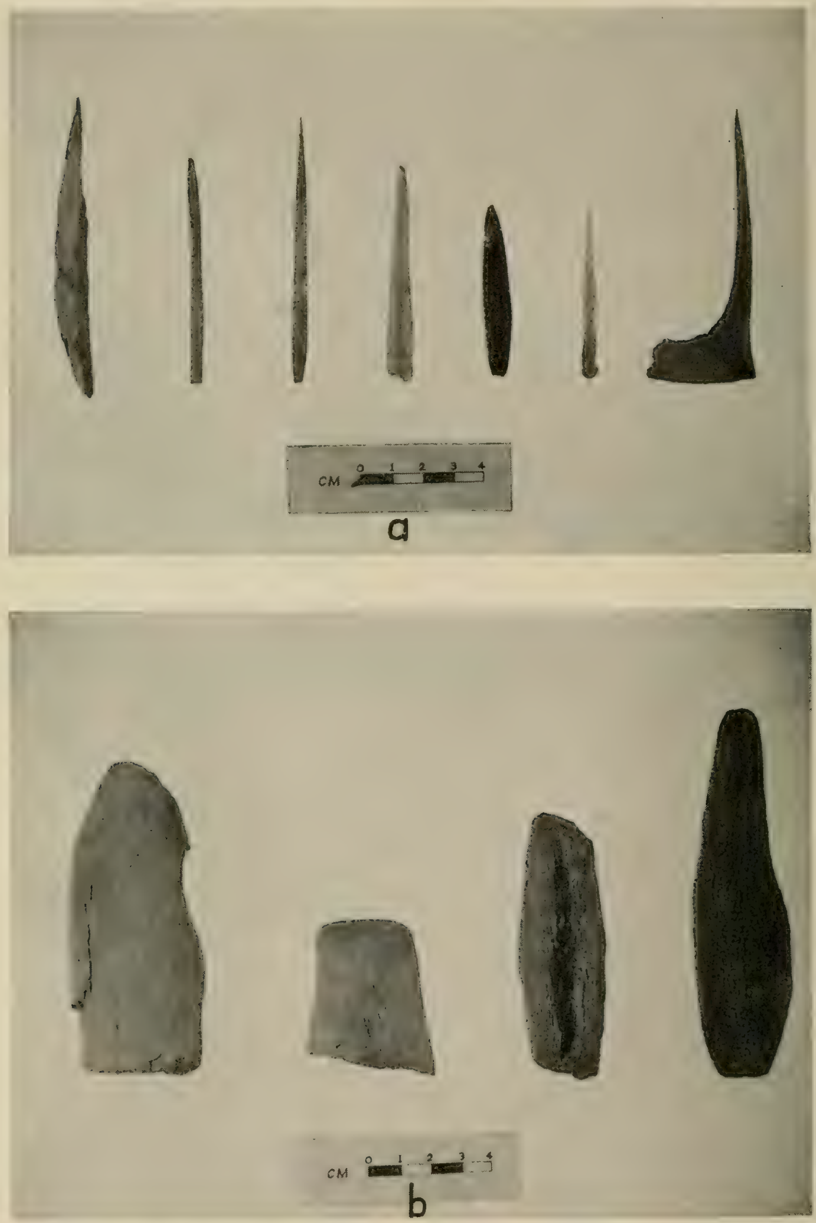
a, House pit 4, Cold Springs (35–UM–7) before excavation. *b*, Earth oven, Cold Springs (35–UM–7).


98
27
92
63
64
82
81
75
93
104
29
86
a
b

a, Artifacts from Techumtas Island (35–UM–17). *b*, House pit 14, Techumtas Island (35–UM–17).



Projectile points, Wallula (45–WW–6).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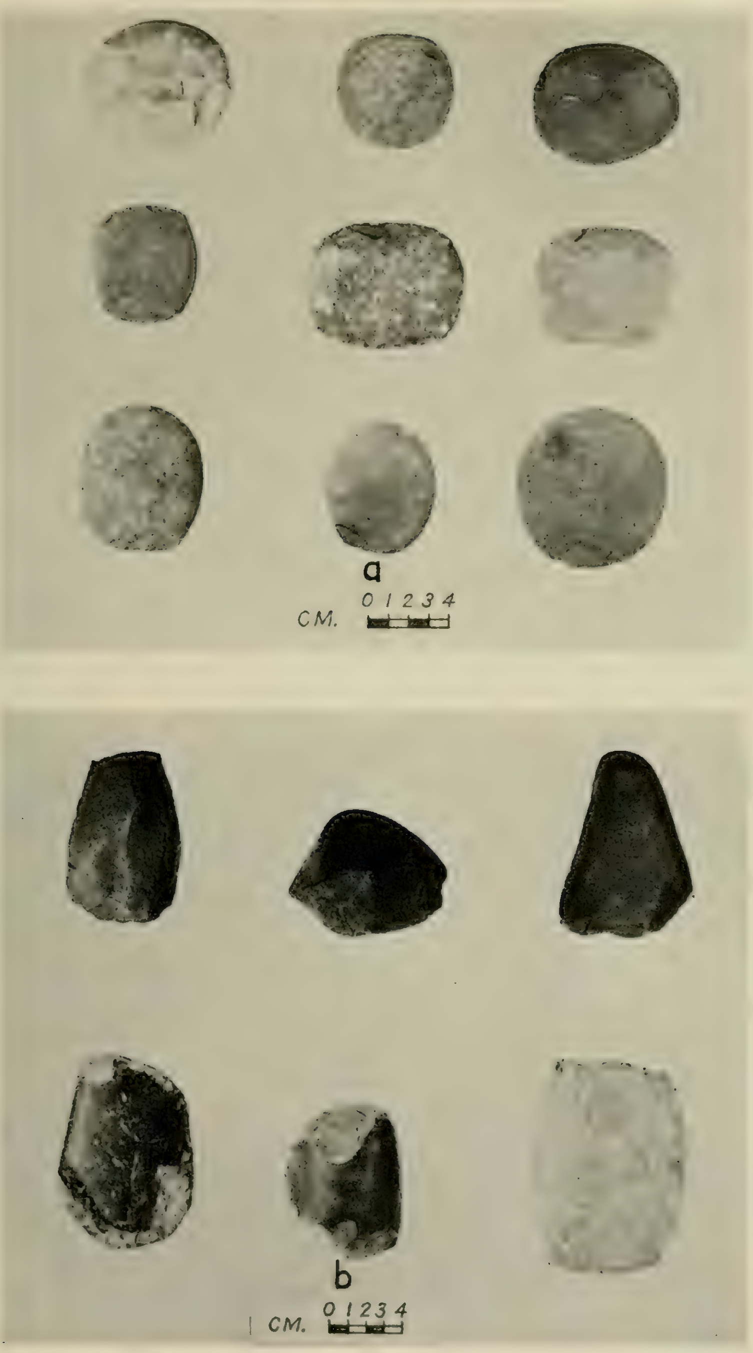
a
CM 0 1 2 3 4
b

a, Bone tools from Wallula (45–WW–6). *b*, Antler wedges from Wallula (45–WW–6).


a
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CM.
b
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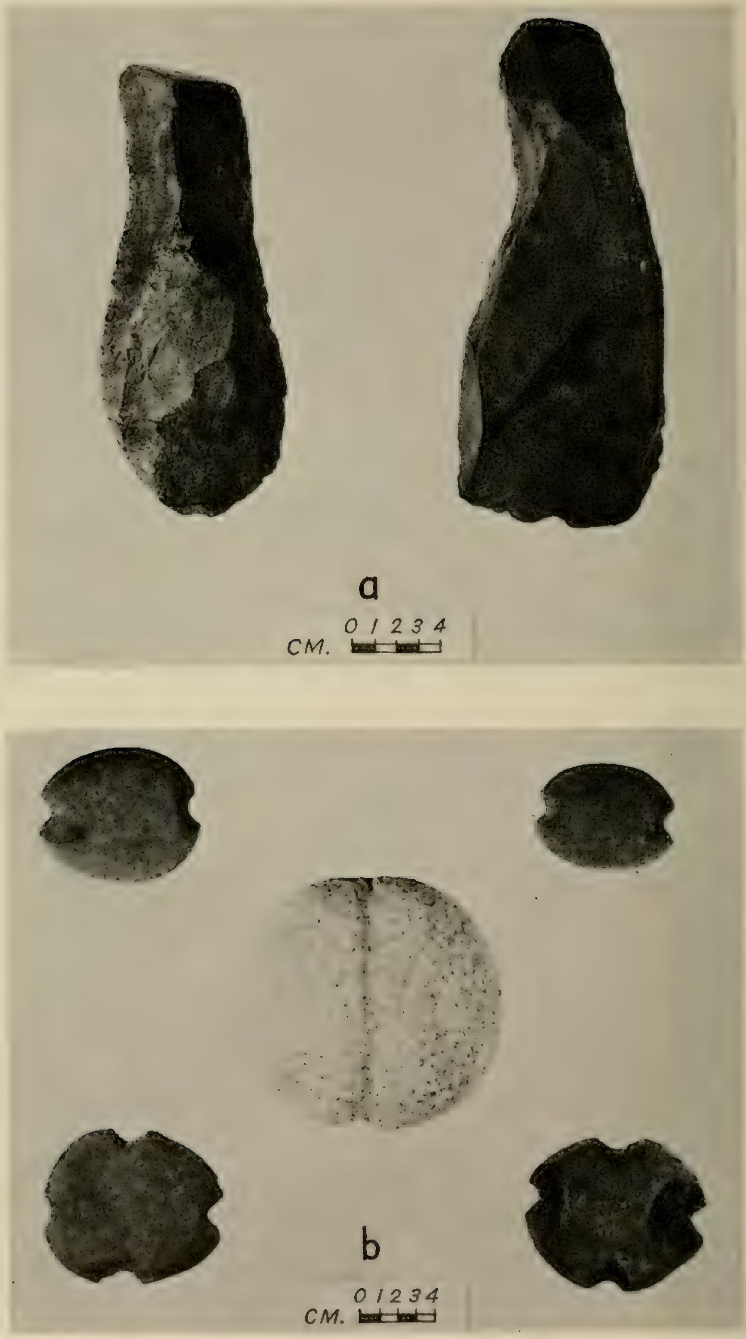
CM.

a, Discoid choppers, Wallula (45–WW–6). *b*, Cobble choppers and hammers, Wallula (45–WW–6).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b
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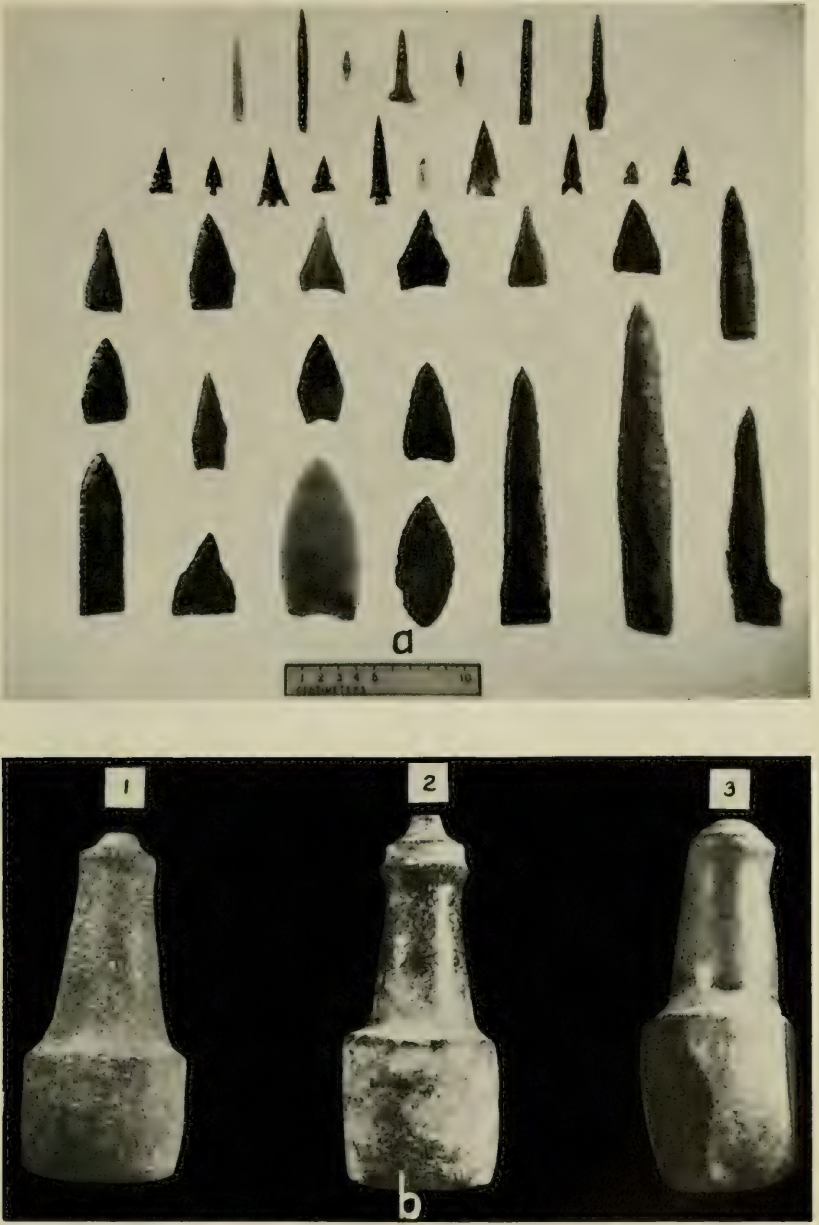
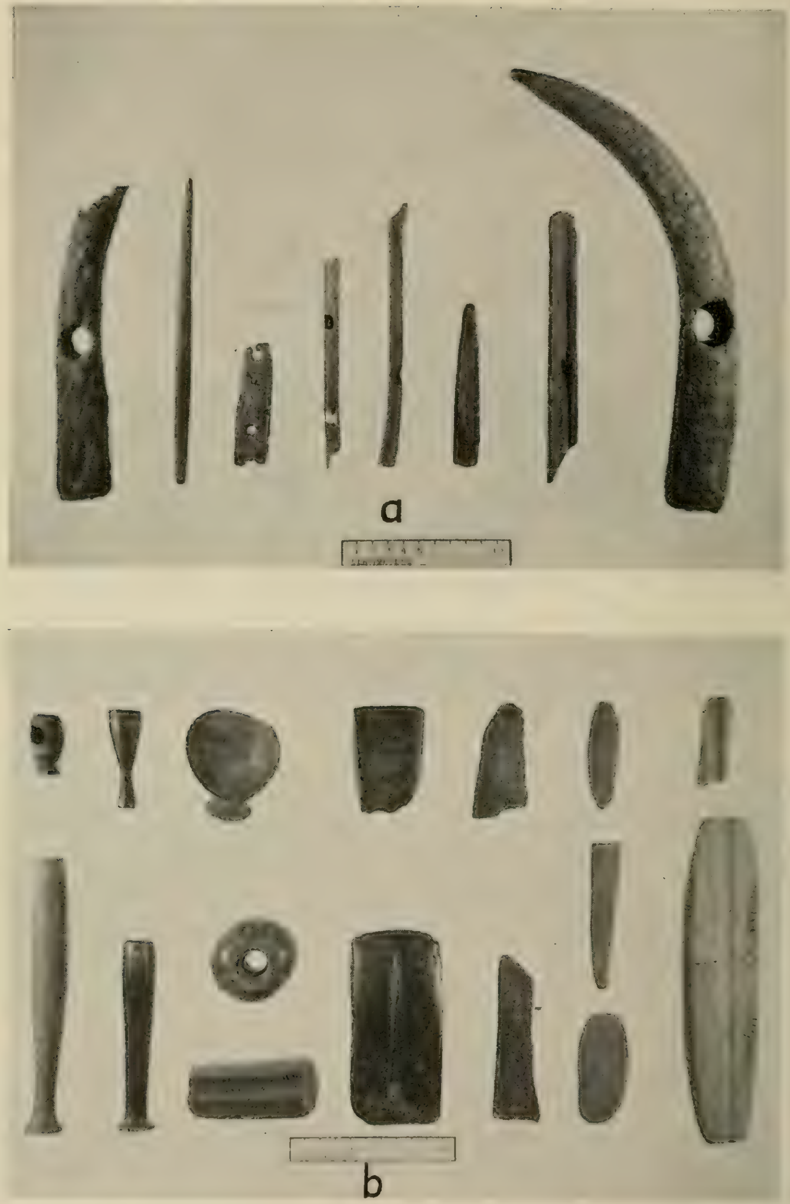
CM.

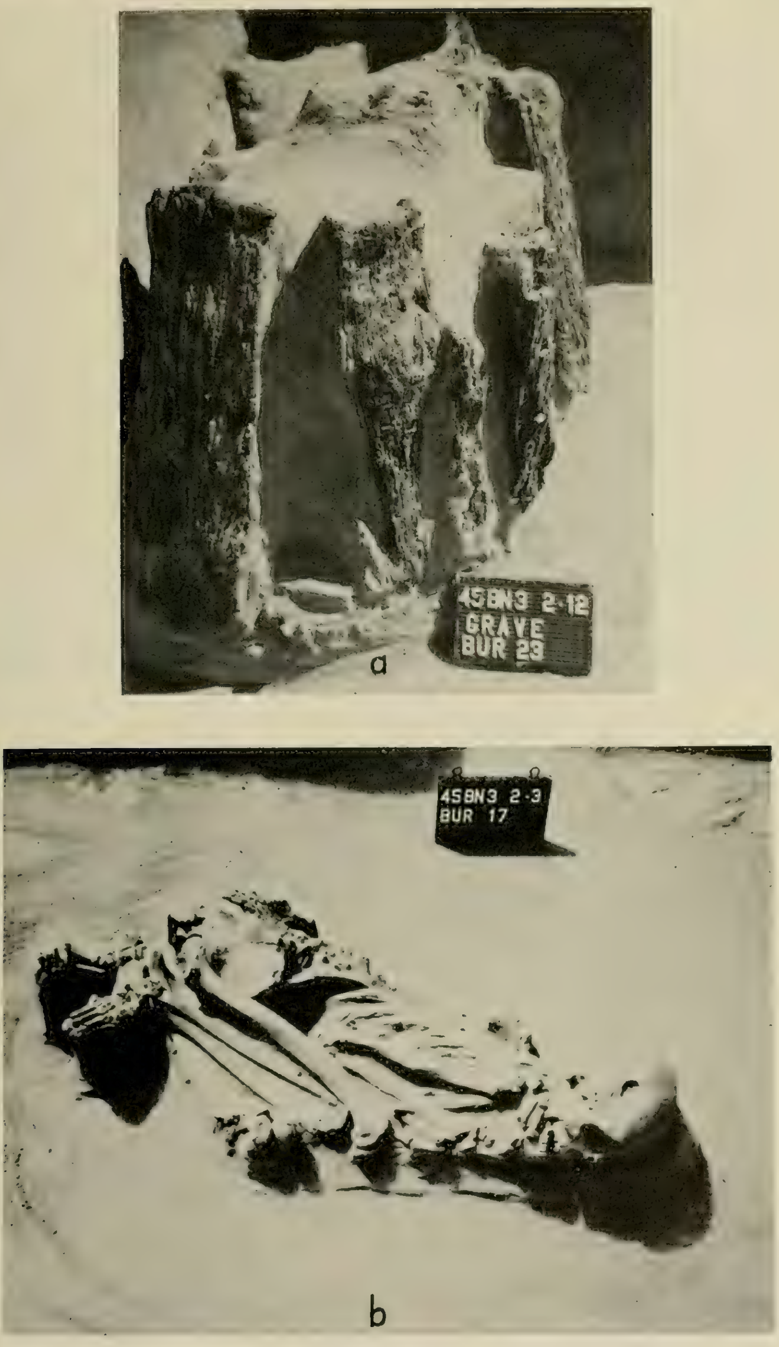
a, Stone hoes from Wallula (45–WW–6). *b*, Net weights from Wallula (45–WW–6).


a
1 2 3 4 5 10
CENTIMETERS
1
2
3
b

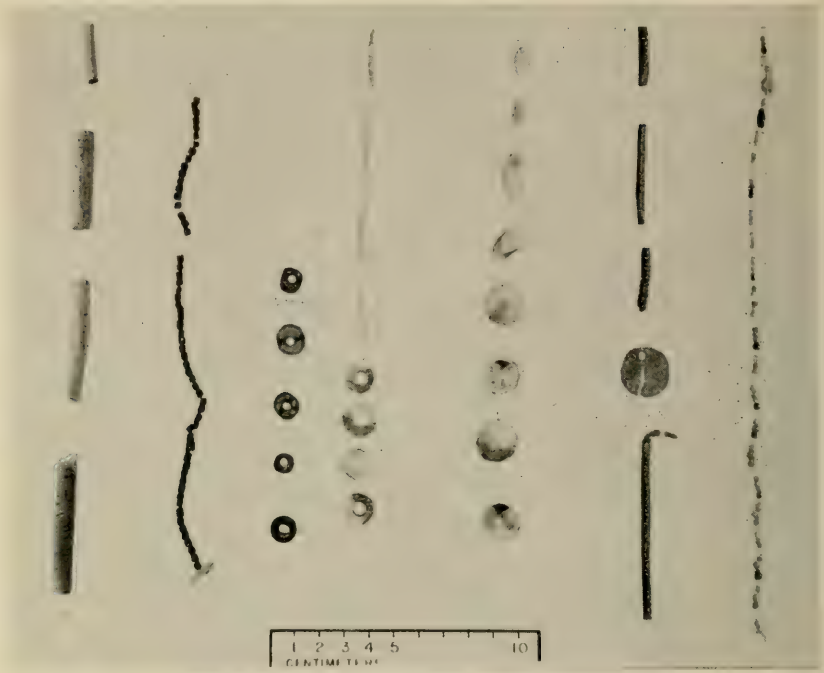
a, Chipped stone from Berrian's Island (45–BN–3). *b*, Stone mauls from Berrian's Island (45–BN–3).



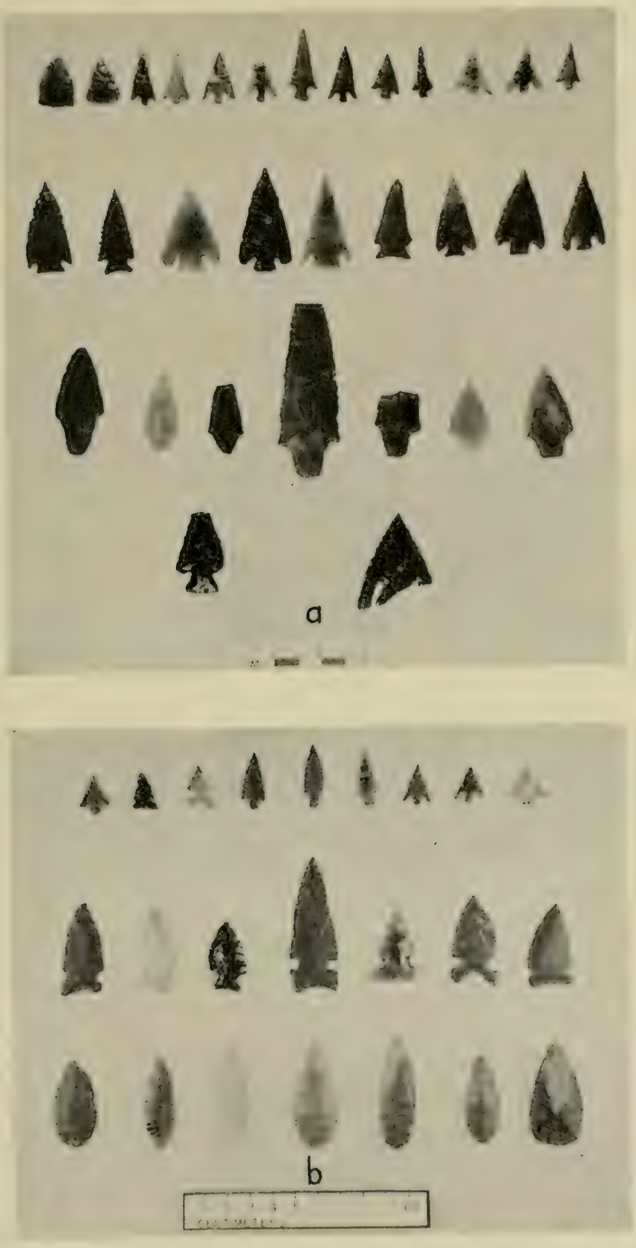
a, Bone and horn implements, Berrian's Island (45–BN–3). *b*, Carved and polished stone, Berrian's Island (45–BN–3).


45BN3 2-12
GRAVE
BUR 23
a
45BN3 2-3
BUR 17
b

a, Plank cist burial, Berrian's Island (45–BN–3). *b*, Flexed burial, Berrian's Island (45–BN–3).


1 2 3 4 5 10
CENTIMETERS

Ornaments from Berrian's Island (45–BN–3).



Projectile point sequences: *a*, Hobo Cave; *b*, McNary region.

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River Basin Surveys Papers, No. 24

The Sheep Island Site and the Mid-Columbia Valley

By DOUGLAS OSBORNE, ALAN BRYAN, and
ROBERT H. CRABTREE

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50. *a*, Burial 17, to the north. *b*, Selected artifacts, burial 17, stratum IV.
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54. Miscellaneous stone artifacts and shell piece.
55. *a*, Chipped and ground stone from the cremation pits, all showing fire action. *b*, Cremation Pit 1, bone and antler pieces, all calcined.
56. Three Columbia Basin projectile-point types.

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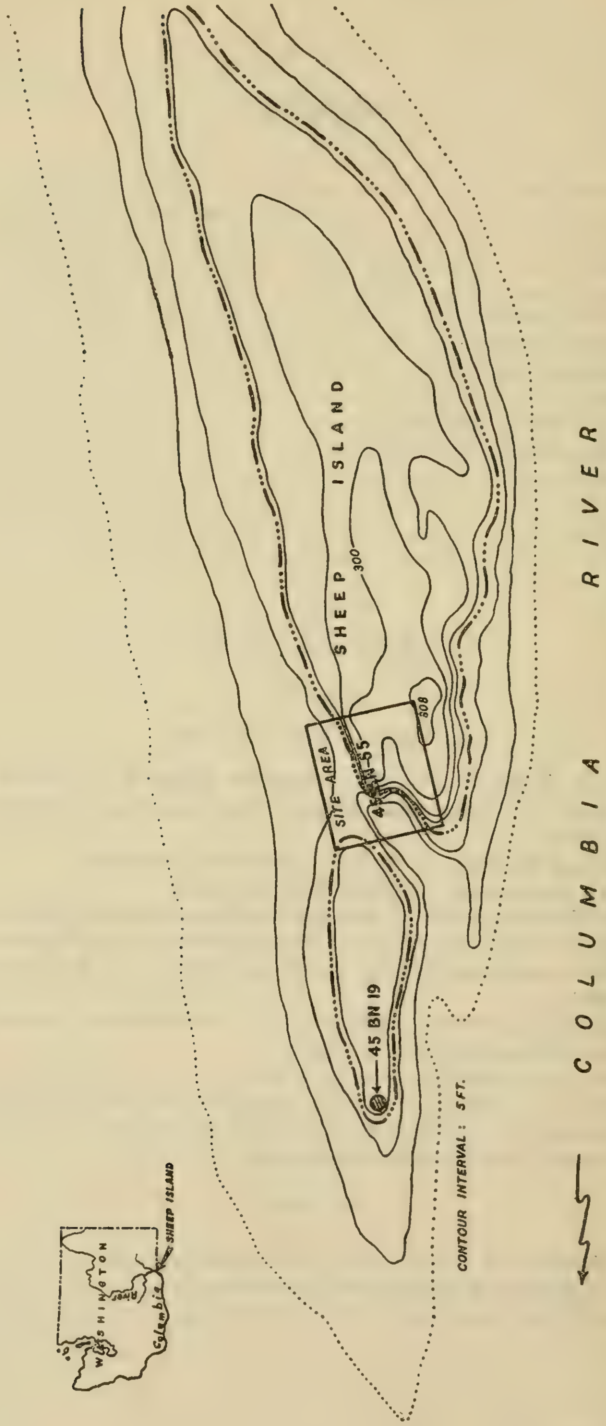
SHEEP ISLAND
300
308
SITE AREA
45 BN 55
45 BN 19
CONTOUR INTERVAL: 5 FT.
COLUMBIA RIVER
WASHINGTON
River
Columbia
SHEEP ISLAND

FIGURE 41.—Map of Sheep Island showing location of excavation area.

THE SHEEP ISLAND SITE AND THE MID-COLUMBIA VALLEY

By Douglas Osborne, Alan Bryan, and Robert H. Crabtree[1]

INTRODUCTION

The Sheep Island (45–BN–55) excavations were completed in 1950 by a River Basin Surveys crew under the direction and part-time supervision of Douglas Osborne. Thomas A. Garth (1952) had worked there previously. During his period of excavations he found and removed, except small perimeter sections, two cremation pits. He found, beneath the pits, uncremated burials (the first burial stratigraphy in that immediate area), some of which he removed and some of which he dug out and reburied.

This report continues the description of the Sheep Island burial complex, and offers a collation of Garth's and River Basin Surveys' data. Further, a brief examination of Garth's methods and conclusions (for which see Garth, 1952) is made; neither fits with the thinking of many ethnologists or archeologists as they presently perceive the problems of the Plateau.

Acknowledgments.—The authors gratefully record the services of the two scientists of the University of Washington, Dr. V. Standish Mallory of the Department of Geology, who identified shell, and Dr. Arthur D. Welander of the Department of Fisheries, who identified fish bones. Victor Clausen and Natalie Burt, then a student in the Department of Anthropology, University of Washington, thin-sectioned and identified stone material. Carolyn Osborne did drafting and darkroom work and checked many pounds of ambroid-consolidated sand in a vain attempt to find textile remnants. Dorris Ackelbein typed the manuscript. Rodger Heglar, then a student in the Department of Anthropology, University of Washington, did the physical anthropology. James Jaquith was responsible for the excavation during Osborne's many absences on inspection trips during the busy summer of 1950. He did well, indeed, with this disturbed site.

Osborne has been responsible for the laboratory supervision, the collation of data, and the final preparation of the manuscript. Bryan did the laboratory analysis and was in charge of the preparation of maps and drafting. Crabtree assisted in bringing together the material that appears in the section headed "Previous work, discussion, and critique" and in organizing the descriptions of chipped artifacts; he also organized the Appendix.

---

[1] Revised manuscript submitted May 1959. The Sheep Island investigations were part of the general salvage program for the McNary Reservoir area.

THE REGION

The best discussion of that part of the northwestern United States, called the Plateau by anthropologists and the Columbia Intermontane Province by physiographers, is to be found in the report by Freeman, Forrester, and Lupher (1945). According to these writers Sheep Island is in the Columbia Basin Subprovince, the Yakima Folds section. The area is structurally a basin, surrounded by mountains. The bedrock of the basin is probably Miocene basalt. In the Yakima Folds section narrow ridges of upfolded basalt and equally narrow, downfolded valleys alternate. These run east-west, extending east from the Cascade Mountains. Of these sharp ridges the Horse Heaven Hills extend the farthest east and are cut by the Columbia River at the magnificent watergap called the Wallula Gateway. The Gateway is some 9½ miles above Sheep Island.

The topography is youthful; the last uplift was Pleistocene and the sediments are Pleistocene and Recent. Soil accumulations, except flood plain material, are probably largely eolian. Flood plain accumulations are uneven. Loamy fine sands (Harper et al., 1948) alternate with areas of scabland and, close to the water, with remnants of surface expressions of sand, gravel, and cobblestone bars. Away from the flood plain the soils vary in depth and in the quality of the drainage. North of the Columbia River, in the region of Sheep Island, the drainage in general is good, or perhaps too good; the land stands high above the water table, the soil mantle is thick, while to the south the scablands are lower, the soil mantle thinner, and the water table closer to the surface. Areas of alkali and numerous moisture-loving plants indicate both poorer drainage and more water.

The climate is continental, semiarid. The rain shadow of the Cascades allows only enough rain and snow to fall during the winter to permit a luxuriant spring and early summer growth of grasses, bush, and weeds. Late summer and fall is a period of dryness and browning landscape. The years are usually temperate; summers are hot, and subzeros winters are not unusual.

In aboriginal times luxuriant grass growth appears to have covered the floodplain and adjacent areas. Plowing and overgrazing have brought about a change so that now bunchgrass and other grasses have given way to bromegrass (or cheatgrass), mustard, Russian thistle, etc. Sagebrush and rabbitbrush, too, have become components of the new plant association. Planted trees, cottonwoods and poplars, and self-sown cottonwoods and willows, together with driftwood from up-river lumbering operations, have changed radically the appearance of the great valley where Lewis and Clark were often unable to find firewood.

THE INDIANS

Sheep Island is in the range of the ethnographic Umatilla tribe. No published ethnography exists of a northeastern Sahaptin tribe, such as the Umatilla, although Dr. Verne F. Ray (1936, p. 109) has worked with them for many seasons. He has yet published no formal ethnography, but many data appear in his 1942 distribution study.

The earlier aboriginal culture of the Umatilla, like that of their neighbors (Nez Percé, Yakima, Cayuse), became masked by an amazing complex, or series of complexes of culture traits from the Plains, which penetrated nearly every phase of their culture. This acculturation took place, apparently, from the second quarter of the 18th century well into the 19th. In a report by Osborne (1957) is described an archeological site (45–BN–3) inhabited during this period which shows a melange of material traits pointing at once toward the old untainted Plateau culture stratum, toward the Plains overlay (Ray, 1939, p. 3), and toward the period of the early fur trade. Both Sheep Island archeological manifestations, the cremation pits sketchily described by Garth and the burials, were prehistoric. There appears to be no reason why they should not be assigned to the earlier true Plateau culture that Ray discusses in his 1939 publication. Only the briefest of ethnographic summaries, from Ray's work and from the interpretation of excavation results, need be given here.

The people were fishers, hunters, and gatherers, probably in that order. Roots and tubers, wild fruits, and seeds were not as important here as were seeds to the south in the Basin. Stone chipping, at least during the period of the burials, did not compare with that which produced the later agate "jewel points," those deeply barbed projectile points which have indubitably caused the looting of more sites than have any other artifacts in the West except the decorative ceramics of the Southwest. Stoneworkers of the earlier period still preferred the less brittle, tougher chalcedonies and fine-grained basalt. Percussion chipping does not stand alone but may have been preferred. Projectile types and knives were not exactly the same as in later periods but are sufficiently similar so that one cannot infer any great change in weapons. Greenstone (jadite, nephrite, etc.) celts, not uncommon later tools, had not yet appeared as far south as this on the scene or at least were not found in the deposit at Sheep Island. These celts are obviously not a basic Plateau trait and probably came into the northern Plateau (and thence to the southern) from the Lower Fraser or possibly from the Coast, Borden (1951, p. 45) to the contrary.

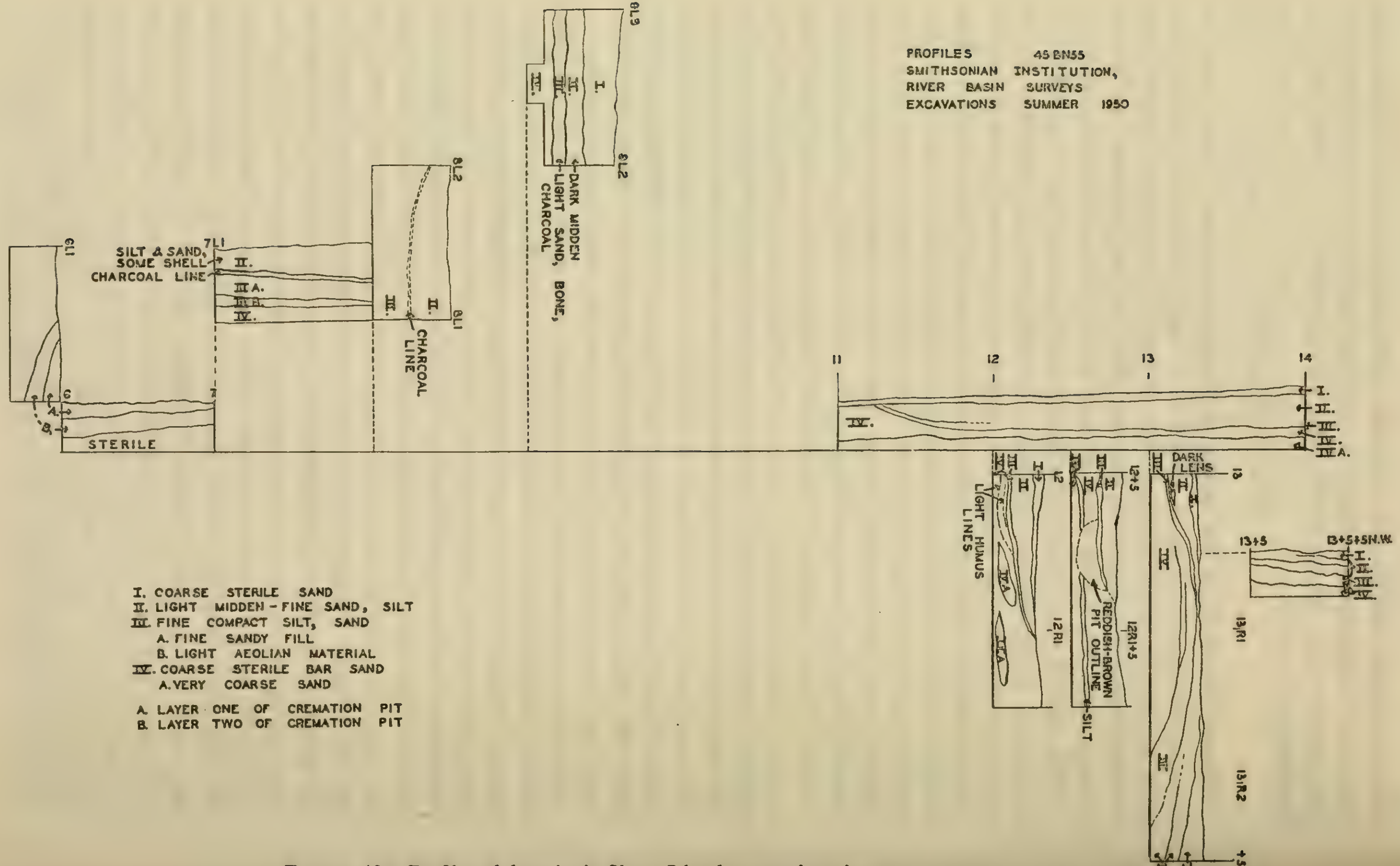
PROFILES 45BN55
SMITHSONIAN INSTITUTION,
RIVER BASIN SURVEYS
EXCAVATIONS SUMMER 1950
8L3
8L2
I.
II.
III.
IV.
DARK MIDDEN
LIGHT SAND, BONE, CHARCOAL
8L2
8L1
II.
III.
CHARCOAL LINE
7L1
SILT & SAND, SOME SHELL
CHARCOAL LINE
II.
III A.
III B.
IV.
6L1
6
7
A.
B.
STERILE
11
12
13
14
I.
II.
III.
III.
III A.
IV.
12
12R1
I
II
III
IV
IV A
II A
LIGHT HUMUS LINES
12+5
12R1+5
REDDISH-BROWN PIT OUTLINE
SILT
13
13R1
13R2
+5
DARK LENS
13+5
13+5+5N.W.
I.
II.
III.
IV.
I. COARSE STERILE SAND
II. LIGHT MIDDEN - FINE SAND, SILT
III. FINE COMPACT SILT, SAND
A. FINE SANDY FILL
B. LIGHT AEOLIAN MATERIAL
IV. COARSE STERILE BAR SAND
A. VERY COARSE SAND
A. LAYER ONE OF CREMATION PIT
B. LAYER TWO OF CREMATION PIT

Figure 42.—Profiles of deposits in Sheep Island excavation pits.

Most dwellings, although not an aspect of 45–BN–55, appear to have been rounded or rounded-rectangular in ground plan, mat-covered lodges. Often the floors of these lodges were sunk 1 or 2 feet, and sometimes more, below the surface, at least for winter living. The superstructures were not, however, the sturdy, permanent things that were an aspect of the semisubterranean dwellings to the north (the Canadian Plateau).

Nonmaterial traits of the past may be inferred from the old, pre-Plains Plateau culture. Political structures were presumably loose, atomistic, and changing. Leadership may have been generally hereditary. The people were probably peaceful (although burial 17 may not agree), lacked a developed social stratification, and eschewed competition. Female puberty rites, if we can continue to read back, were not stressed; the vision quest, even then partly formalized, was an all-important life experience, at least to the male.

SITE STRATIGRAPHY

Because of the previous excavations by Garth at BN–55, and a certain amount of collector's activity between the period of his excavations and those by the River Basin Surveys in 1950, it was not possible to get complete profiles at the site. The disturbed nature of the surface is shown in plate 47, *a;* figure 41 contours do not express such minor features. This lack of profiles is unfortunate, as a thorough knowledge of the relationships between river deposition and the cultural picture would have been of interest and might well have had far-reaching value. However, there can be no quarrel with Garth's interpretation of cultural sequences (Garth, 1952); remnants of the cremation pits were found by the River Basin Surveys crew. Also, the profiles made in 1950 do give a coherent, if sketchy, picture of the site (pl. 47, *b*). A discussion of the pedologic composition of the site follows. The profiles of figure 42 should be consulted as the description is read.

Stratum I.—This was a much disturbed layer of coarse, sterile, recent sand overlying the graves and, in many places, the midden material. It appears more as a masking superficial cover than as an aspect of the structure of the excavated area. In the northwest part of the dig, on the 9-line, it is 2.0 to 2.5 feet thick and appears to gain in depth as it extends west and upward. It is uniform from stakes 11 to 14 along the centerline, and fades, as one goes south over what appears to be a buried small swell and swale in the site, along the 13-line. At 13R2 this stratum again expands in depth.

Stratum II.—Again, this component of the soil profile was deeper in the northeastern part of the excavation. It becomes less definite along the 11–14 part of the centerline, possibly because this was once a small swale, sloping downstream (southwest). It is weakly developed as one goes over the hump of the small buried swell, along the 13-line to the south, and expands sharply from about 13R2 on.

Stratum III.—This is the most dubious and controversial layer on the profiles. It is clear enough at the northwestern section where it is separated from stratum II by a charcoal line or thin level. In accordance with Garth's idea, this is interpreted as cremation pit debris. Still at the L1-line, 7 to 8, this stratum is divided into two: A, a fine sandy fill, and B, a very fine silt that was interpreted in the field when this short profile was drawn (it was one of the first) as eolian material. It is possible that it is partly so, but, since the remaining profiles have been made, it would seem more likely to have been water deposited.

This stratum was truncated somewhere between 8L2 and 11 centerline and from there it dips sharply below the surface to about 2.5 feet at 14 centerline. It is here a compact, fine silt layer about 2 inches thick. It climbs sharply south along the 13- and 12-lines and is again truncated by the hillock or rise of heavy bar sand (st. IV). It is not certain that it reappears around 13R2, but the bar sand in that section has light streaks within it which may be parts of this stratum or, more likely, an expression of stratum II.

Stratum IV.—In the field this stratum was called bar sand. It could generally be differentiated by its coarseness. As it represents successive periods of deposition, probably flood, the amount of segregation varies. This stratum became increasingly coarse with depth as was demonstrated by the several deep pits that were dug to insure our exhaustion of the deposit. The subdivision IVa indicates sections where the gravelly nature of the deposit was especially obvious on the profiles. Along the 12-line this coarse deposit appeared as lenticular in cross section. On the 12 plus 5 to 12R1 plus 5-line is an actual division of IV from IVa by a thin compact silt deposit, generally about 0.2 feet thick. This silt level and stratum IV were penetrated here by a reddish brown pit outline that contained burial 17. Stratum III, the most widely traceable of the compacted silt levels, was deposited after the burial. Along the 13-line, prominent at 13R1, is shown the stratum IV swell or small buried hillock or ridge.

Portions of the cremation pits not fully cleared out by Garth were completed in 1950. Fragments of his pit I (fig. 43) that do not appear on the profile sheet were about 0.5 foot thick and overlay the strata that contained the burials. Parts of pit 2 at stake 6 centerline were divided into two layers by a vague sandy and ashy line. This stratigraphy may have been localized in that section of the pit. It is, therefore, largely presumptive.

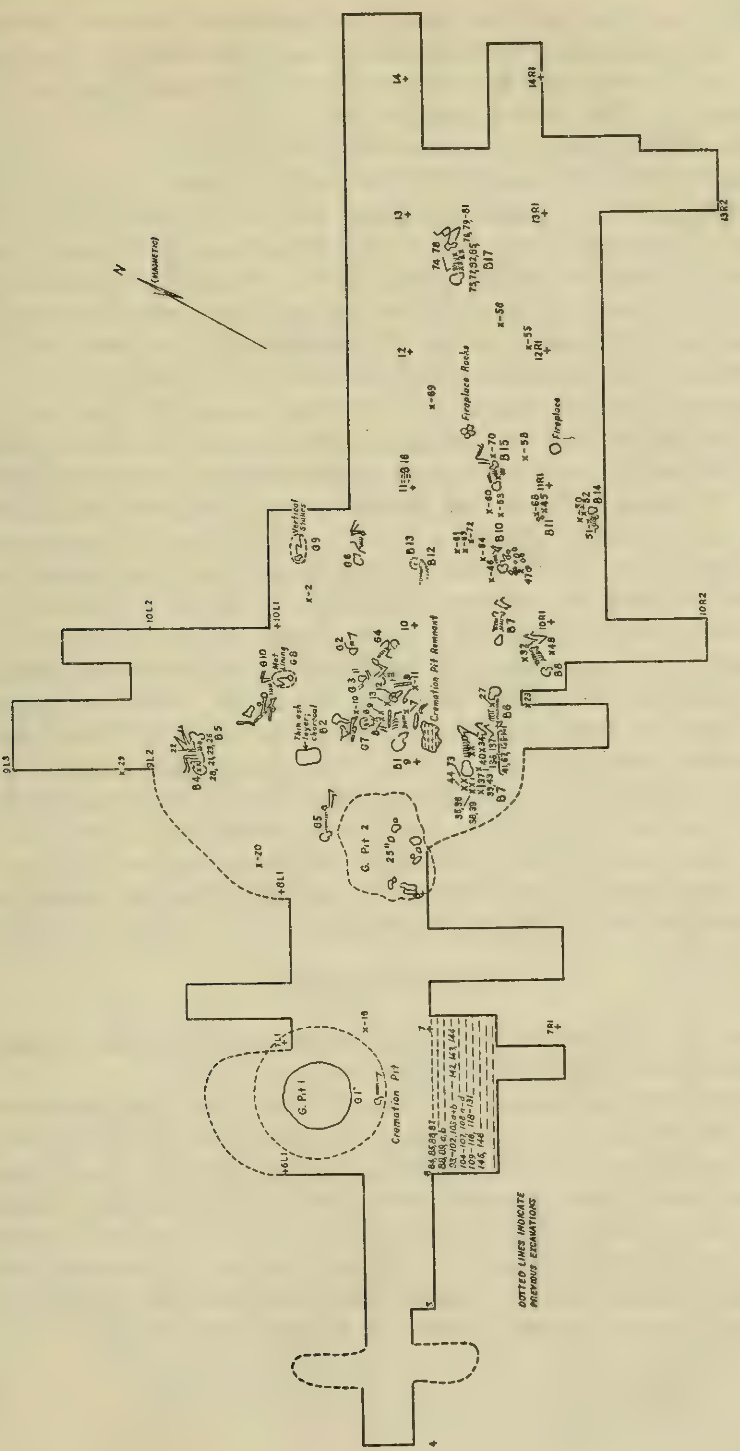
N
(MAGNETIC)
G. Pit 1
Cremation Pit
G. Pit 2
Cremation Pit Remnant
Thin ash layer; charcoal
Vertical Stakes
Mat Lining
Fireplace Rocks
Fireplace
DOTTED LINES INDICATE PREVIOUS EXCAVATIONS

FIGURE 43.—Diagram of the excavations at Site 45-BN-55.

All burials that could be placed stratigraphically were in stratum IV. The presumption that all others were in the same level is strong. Stratum III is thought to represent a later flood stage which covered the burials. This is demonstrated only once, unfortunately, on the profile. The top three strata cover the burials.

Plate 47, *b*, a photograph of the profile between 11 plus 5 feet centerline and 11R1 plus 5 feet, shows a depth of about 4 feet on the T-rod. Stratum IV runs from 0 to 2 feet, stratum III is at 2 feet, stratum II roughly between 2 and 3 feet, and stratum I above 3 feet. The gentle rise of stratum III to the right indicates the swale or hillock now truncated. At the left stratum III dips down into the old swale. The superficial nature of stratum I is obvious.

The cremation pits appear to have been in use while stratum III was the local surface and perhaps after stratum II was deposited. There are no data as to their exact position relative to the last deposition. Our data indicate that the island was abandoned as a burial place for a period after the burials and before the cremations. Whether this was for the duration of only one flooding or lasted for a number of years is uncertain. The burial change, in view of the apparent cultural continuity, seems rather abrupt if stratum III represents only one season. A profile along the centerline through the cremation pits would have told the story. Osborne's present belief, based on an intimate knowledge of the site, is that there was a respectable lapse of time between inhumation and cremation at BN-55. A large number of the burials—Nos. 17, 15, 14, 11, 10, 9, 8, 6—and probably Nos. 13, 12, and 7 were placed in the small rise or swell which ran grid north and south (magnetic northeast and southwest) along the R1-line. This was probably before the swale along the centerline and L1-line was filled in and certainly before cremation.

THE BURIALS

Below is a listing of the burial information for each of the 16 burials removed by the Smithsonian crew.

Table 1 lists pertinent data on these 16 burials and also for those removed by Garth. The sex and age of Garth's burials (of which the first three, brought to the University of Washington for examination, are not keyed to the published series) are taken from Garth (1952). All other physical anthropological information given here rests on work done by Rodger Heglar. Heglar's studies of these and other skeletal remains from the Plateau have been presented as a master's thesis, which we hope will eventually be published.

TABLE 1.—*Data on 17 burials removed at Sheep Island*

BURIALS REMOVED BY SMITHSONIAN CREW AND GARTH (G 1–10)

Burial No.	Orientation	Burial type	Artifacts	Sex	Age	Condition of preservation	Stratum	Deformation	Knees and position	Remarks
1	SW	Semiflex	Yes	Male	Adult	Poor	IV		Right side and back	Mat? Fire?
2	Disturbed	Disturbed	No	Female	do	do	IV?			Fire?
3	do		No	Male	do	Fair	IV?			
4	SSW	Full flex	Yes	do	Young adult	do	IV?	FO	Left side	Mat.
6	NE	Semiflex	Yes	Female	Adult	Poor	IV	FL	Right side	Mat? Bark?
7	SW	do	Yes	Male	do	do	IV	FL	Left side	
8	SSW	do	Yes	Female	Young adult	Fair	IV	FO	Back	
9	SW	do	No	Male	do	Good	IV	FO	Back and right side	
10	SSW	do	Yes	Infant	Infant	Fair	IV		do	
11	SW	?	Yes	do	do	do	IV		Back?	
12	SW	Extended	No	do	do	Poor	IV		Back	
13	Disturbed	Disturbed	No	?	Adult	Fair	IV?		?	
14	NE	Semiflex	Yes	Infant	Infant	Good	IV		Back, knees right	
15	SW	do	Yes	Male	Middle-aged adult	Fair	IV	FL	Left, knees west	
16	NE?		Yes	Infant	Infant	do	IV?			Cedar slab.
17	SW	do	Yes	Male	Adult	do	IV		Prone, knees east	
G1					Child					
G2					do				Primary burial?	
G3			No	Male	Adult				Second?	
G4	SE	Flex	Yes	Female	do					
G5	W	Legs flex	No	Female?	do					Fire.
G6		Semiflex	Yes	?	Adult female	Poor			Knees east	Planks over knees.
G7	W	do	Yes	Male	Adult				Back, east	
G8	W	do	No	do	do	Poor		O(?)	Back, knees north	
G9	W			Child	Child	do			Back	Mat.
G10	W	Flex, probably semiflex	Yes	Male	Adult	do			do	

Table 2, prepared by Heglar, gives sex and age of the burials. There are 18 burials, including 3 of Garth's.

TABLE 2.—*Burials, age, and sex*

Age	Male	Female	Total	Percent
Infant (B-3 yrs.)			5	27.8
Child (4-6 yrs.)				
Child (7-12 yrs.)				
Adolescent (13-17 yrs.)				
Subadult (18-20 yrs.)				
Young adult (21-35 yrs.)	2	1	3	16.7
Middle aged (36-55 yrs.)	1		1	5.5
Old aged (56-75 yrs.)		1	1	5.5
Others	5	3	8	44.5
Total	8	5	[1] 18	100.0

[1] Burials Nos. 5 and 13 are omitted.

A few remarks categorizing the burial complex as we see it are in order. Orientation is prevailingly (even among the infants) southwest. Garth records this as west and the actual result is the same: the heads lay downstream, as the Columbia, here, flows slightly south of west. Garth records one burial with a southeasterly orientation; the River Basin Surveys crew removed three northeasterly ones. The former is not readily explainable; the latter three would appear to be simply a reversal of the burial bundle by attendants who went absently about their business. Heavy swathing, probably a mat, is an inferred culture trait; it would obscure the bodily features of a burial bundle.

Semiflexure is the preferred burial type. This contrasts with presumably earlier extended burials at 45-BN-15 (Crabtree, 1957) and later more fully flexed post-cremation ones at 45-BN-3 (Osborne, 1957). Artifacts were usual. Of the eight infants and children in Garth's and our series, four had nonperishable artifacts. The proportion with respect to sex is about the same as with the adults: 5 males of 11 and 2 females of 5. With the surprising exception of burial 10 (pls. 51, *a;* 51, *b*, *47*), shell gifts were preferred for the very young. The pestle killed by breaking into three pieces is a usual culture trait in later trade times, although not usually seen with infants. Dentalia and a single shell pendant, rectangular, with three holes along one side and one on the other (pl. 54, *68*), were the other nonperishable artifacts with infants. The body was usually laid on the back, or back with the legs directed to one side. This position was more obvious with the infants, although adults were usually partly on the back; the semiflexure caused a distortion. One prone burial (No. 17) is unusual in this, as in other aspects. It is possible that the individual's death by violence is associated with his unorthodox burial position. Probable matting remnants, bark, evidences of fire, and presence of pits as an aspect of the graves all give hints as to the burial pattern. Fronto-lambdoidal and fronto-occipital deformation were probably, culturally, identical. All those showing deformation were in the adult ranges. Four males and two females are listed. The series is probably too short to indicate a cultural preference.

Burial 1.—Adult male,, orientation to southwest, semiflexed on right side and back; poor condition. Inclusive in stratum IV. Scattered human bones nearby; a grave may have been disturbed by this burial. Evidences of matting, charcoal, and ash appeared in the grave. Apparently the body had been wrapped in mats; there may have been a fire near the grave and the fire debris may have become included in the grave fill purposely or accidentally. Artifacts with the skeleton were grouped on left side and back of skeleton. One projectile point lay in chest area. Field specimen Nos. 45–BN–55 burial 1 (dimensions are metric; w=width, th=thickness, and l=length):

/8. (Pl. 54, *8.*) Diorite war club head or arrowshaft smoother (?) (9.5 cm. l, × 3.8 w × 3.2 th, wt. $\frac{5}{8}$ lb.).

/9. Porphyritic trachyte war club head or arrowshaft smoother (?) (9.1 l × 4.9 w × 4.0 th, wt. $\frac{9}{16}$ lb.).

/6. Chalcedony projectile point (pertinent information on chipped pieces appears in table 3).

/11. Basalt.

/12. (Pl. 52, *a.*) Jasp-opal projectile point.

/10. (Pl. 52, *b.*) Bone splinter awl or punch, blunt tip broken.

Burial in square 9CL, 2.5 feet north, 1.3 west, surface depth 2.0 feet, datum depth 8.2 feet.

Burial 2.—Adult female, poor condition, partially disturbed by collector's digging, probably inclusive in stratum IV; a Kleenex box lay with and under some of the bones. There were indications of a squarish pit dug into a level which showed a slight accumulation of charcoal. No artifacts; presumably looted. Burial in square 9CL, 3.0 north, 5.0 west (grid directions). Surface depth 2.0, datum depth 8.2.

Burial 3.—Adult male, fair condition, partial, disturbed probably by same diggers who found previous burial. No artifacts. Square 9LI, 4.0 north, 2.0 west, surface depth 3.5, datum depth 8.9, probably inclusive in stratum IV.

Burial 4.—(Pl. 49, *a.*) Young adult male, fronto-occipital deformation, fair condition, complete, orientation south-southwest, fully flexed, on left side, arms crossed in front. Inclusive in stratum IV, ovoid grave. Matting had been wrapped around the body and was traceable over and around the body. BN–55, burial 4 artifacts:

/22. Small, crude basalt point on right tibia (2.0 cm. l × 0.9 w × 0.4 th).

/23. (Pl. 52, *a.*) Large basalt chipped piece probably a knife; in front of face.

/21. (Pl. 52, *a.*). Same; in front of face.

/26. (Pl. 52, *b.*) Flat antler gaming piece with an eye design; in front of face (8.1 cm. l × 2.0 w × 0.6 th).

Two antler pieces, large deer or elk, lay in front of the chest and over the right arm bones. They were decayed and we were unable to preserve them sufficiently for study. The same is true of antler and wood fragments over the lower chest. Perishables were apparently regular grave furnishings. Square 8LI, 5.7 west, 9.7 north of 8LI. Surface depth 3.0, datum depth 7.1.

Burial 5.—Registered, in the field, as an infant. It lay only a foot back (east) of burial 4. Dentalia shells (45–BN–55/25) were found with it. In the laboratory it was found that the bones were not human. It is reasonable to assume that they were part of a food deposit with burial 4. The presence of the shell links the bones to that adjacent burial which was well furnished.

Burial 6.—Adult female, fronto-lambdoidal deformation, head northeast, semiflexed on right side, left arm along back, face north. Inclusive, oval grave, stratum IV; poor condition; incomplete. Strips of cedar bark 2–3 inches wide and 1–2 feet long lay lengthwise over the body. Artifacts:

/27. (Pl. 52, *a*.) Projectile point altered to chalky state (by fire?). Volcanic ash and fragments of pumice on upper chest.

/30, /31. Fragments of bark and/or grass from over rib case and left forearm. Mussel shells were found beneath the burial, and fragments of bark lay over it. A piece of barely recognizable antler lay in front of the skeleton.

Square 9RI, 2.5 north, 4.5 west, surface depth 2.5, datum depth 9.4.

Burial 7.—(Pl. 48, *a*.) Adult male, fronto-lambdoidal deformation, orientation southwest; semiflexed on left side and back, hands at pelvis, arms at sides; poor condition, incomplete. Inclusive in stratum IV, bar sand in an oval pit. A mussel shell lay under the right elbow. Definitely below remnants of cremation pit. Compacted organic material from over the left elbow appears to have been grass, unwoven. Artifacts:

/33. (Pls. 48, *b*; 52, *b*.) Bone needle, point end missing (14.6 cm. plus l, 0.9 w × 0.6 th). Diameter of biconically drilled eye 0.4 on one side, 0.5 on other. Deposited with artifacts 35, 36, 37, 39, 41, 43, 44, 67, 73, immediately above the head.

/34. Bits of organic material, could not be analyzed.

/35. (Pl. 48, *b*.) Projectile point or knife, opal, asymmetrical base.

/36. (Pl. 48, *b*.) Beaver incisor chisel, 6.8 l × 0.8 w.

/37. (Pl. 52, *b*.) Bipointed bone object, possible gaming piece (7.2 l × 1.3 w × 0.8 th).

/39. (Pl. 48, *b*.) Antler wedge or scraper. Bit end ground from both sides, scratches perpendicular, across long axis. (8.1 l × 4.6 w × 0.8.)

/40. (Pl. 48, *b*.) Longitudinally concave-convex bone tip end fragment, possibly fragment of one of the two valves of a 3-piece compound harpoon. (3.6 l plus, 0.9 w × 0.2 th., near right elbow.)

/41. (Pl. 48, *b*, 52, *b*.) Bone object, 2-pronged, U-shaped, inside of U and inner prongs concave. 3.7 cm. l × 1.9 w × 1.0 th. × 1.0 between prongs.

/42. (Pl. 48, *b*.) Jasper projectile point, same type as No. 136, not localized, fragmentary.

/43. (Pl. 48, *b*.) Blade or scraper, chalcedony, pressure worked on both sides of one edge and rough pressure or percussion on other edge.

/44. (Pl. 48, *b*.) Blade, chalcedony, worked on one side of three.

/67. (Pl. 48, *b*.) Lamellar blade, chalcedony, secondary pressure retouching.

/73. (Pl. 48, *b*.) Antler wedge fragment, base missing, tapered to blunt tip.

/136. (Pl. 48, *b*.) Projectile point, jasper, directly beneath right mastoid.

/137. (Pl. 48, *b*.) Projectile point, chert, beneath right mastoid.

/138. (Pl. 48, *b*.) Stem end of 2-piece steatite pipe, under right elbow. Diameter at base 2.1 cm., at stem end 0.9. Hole diameter 0.9 to 0.5 cm.

/139. (Pl. 48, *b*.) Bone point, probably point for compound toggling harpoon. Under right elbow, oval cross section. (6.3 l × 1.1 × 0.6 th).

/140. (Pl. 48, *b*.) Blunt point fragment of bone, tip of awl or point of harpoon. Diameter 0.8 cm. at greatest. Near right elbow.

/141. (Pl. 48, *b*.) Antler wedge fragments. Cut base, bit missing. Near right elbow.

Squares 9RI and 8RI, 9R1: 6.0 west, 0.7 north, datum depth 6.3 feet.

Burial 8.—(Pl. 49, *b.*) Young adult female, fronto-occipital deformation, orientation south-southwest, semiflexed on back, arms at sides, hands at pelvis, knees to right. Fair condition, fairly complete. Oval pit grave inclusive in stratum IV. There was a dark line above the burial, possibly a remnant of the cremation pits. Artifacts:

/32. (Pl. 52, *a.*) Knife, agate, at left elbow.

Square 9R1, 7.5 north, 1.8 west, surface depth 2.0, datum depth 6.4.

Burial 9.—Young adult male, fronto-occipital deformation. Good condition, complete, orientation southwest, semiflexed on back and right side, knees to right, arms at sides, hands by pelvis. Beneath a level of charcoal, probably part of cremation pit; inclusive in bar or beach sand stratum IV, pit not visible. Artifacts: None. Squares 10R1 and 9R1, 10R1: 0.0 north, 4.0 west, surface depth 3.0, datum depth 0.9.

Burial 10.—(Pl. 51, *a.*) Infant, orientation south-southwest, semiflexed on back, knees to right, hands at pelvis, fair condition. Inclusive in bar sand, stratum IV. Artifacts:

/46. Pecked basalt fragment, unknown use, possibly broken bowl, 0.5 foot west of head, 6.4 l × 2.8 w × 1.3 th. (association open to question).

/47. (Pl. 51, *b.*) Large basalt pestle, in three pieces, 0.4 foot southeast of head. 38.5 cm., central diameter 6.1 cm., tapers to blunt tip, flat bottom with chips broken off, probably by use. Weight 4¹¹⁄₁₆ lbs.

Square 10R1, 4.0 north, 3.5 west, surface depth 2.7, datum depth 9.8.

Burial 11.—Infant, orientation southwest, on back, flexed, fair condition, inclusive in bar sand, stratum IV. Artifacts:

/65. Four pieces of dentalium, three long about 3.0 cm., one short bead 0.9 cm. found scattered along skeleton.

/68. (Pl. 54.) *Haliotis* (species?) pendant 1.9 l × 1.3 w × 0.15 th. Three perforations, sagittal incision on one side. This item was examined by Dr. V. Standish Mallory, Department of Geology, University of Washington.

Square 10R1, 7.8 north, 0.7 west, surface depth 1.5, datum depth 8.9.

Burial 12.—Infant, orientation southwest, on back, extended, arms at sides; knees slightly flexed and elevated, poor condition, incomplete. Inclusive in sand, stratum IV. Artifacts: None. Square 10R1, 4.0 north, 9.0 west, surface depth 1.3, datum depth 8.7.

Burial 13.—Adult, sex questionable, disturbed (probably by infant burial 12). Probably inclusive, stratum IV, fair condition, incomplete. Artifacts: None. Square 10, 10R1, 4.5 north, surface depth 1.8, datum depth 8.3.

Burial 14.—Infant, orientation northeast, semiflexed on back, arms at sides, knees to right. Inclusive in bar sand, stratum IV. Excellent condition for infant. Artifacts:

/50. Five dentalia, around right wrist.

/51. Seven dentalia around left wrist.

/52. Necklace of 36 dentalia. All had sufficiently moved in the earth so that details of stringing were not apparent.

Square 10R2, 7.5 north, 7.5 west, surface depth 1.0, datum depth 9.5.

Burial 15.—Middle-aged adult, male, orientation southwest, semiflexed on left side, hands beneath face, knees to left, in coarse bar sand, stratum IV. A river cobble lay at the head, possibly not an association. Artifact:

/62. Two dentalia, broken or cut, length 1.3 and 1.1 cm, below chin.

Square 11R1, 2.7 north, 4.4 west, surface depth 1.2, datum depth 8.7.

Burial 16.—Infant, orientation northeast (?), fair condition but incomplete. Stratification questionable, probably IV. Cedar slab, end burned, lay over the body. Artifact:

/59. Cedar fragment.

Square 11; 0.8 north, 0.4 west, surface depth 2.0, datum depth 8.7.

Burial 17.—(Pl. 50, *a.*) Adult male, orientation southwest, semiflexed, prone, knees to left, arms folded and hands at head. A pit line, reddish brown, was visible around parts of the burial. It was roughly oval; was inclusive in stratum IV. There were three concentrations of basalt chips near the burial: at the knees, near the pelvis on left side, and near the right shoulder. Artifacts:

/74. (Pl. 50, *b.*) Projectile point, chalcedony, embedded in lumbar vertebra.

/75. (Pl. 50, *b.*) Projectile point, jasper, in lower abdomen area.

/76. (Pl. 50, *b.*) Projectile point, opal, base missing, lower abdomen.

/77. (Pl. 50, *b.*) Projectile point, obsidian, tip, tang and part of base missing, lower abdomen.

/78. (Pl. 50, *b.*) Projectile point, black jasper, lower abdomen.

/79. Projectile point, jasper, tip, tang, and base broken. Sides almost parallel, tangs flaring, lower abdomen.

/80. (Pl. 50, *b.*) Projectile point, opal, lower abdomen.

/81. (Pl. 50, *b.*) Projectile point, jasper, lower abdomen.

/82. (Pl. 50, *b.*) Projectile point, jasper, tip and base missing, lower abdomen.

/83. (Pls. 50, *b*, 52, *b.*) Bone implement, tip broken, tapers to chisel-shaped base, length 7.5 plus, possibly fish spear part, on back, upper thorax.

Square 12R1, 6.5 north, 6.5 west, surface depth 2.6, datum depth 10.2.

This individual was obviously killed by the numerous arrows fired into him, one of which became embedded in the bone of a central lumbar vertebra. The type, number, and broken condition of points, probably a result of fighting and death struggles, are of interest. The bone implement may have been used as a stabbing weapon. Nine points appear to have taken effect on this unfortunate, three have tip, a tang, and base broken; on one the base only has been fractured. Like burial 15 it is an atypical interment.

To the above listed series have been added three burials which Garth brought to the Washington State Museum and which Heglar measured. They were an aged female, a female, and a male. We have no data which enable us to match these with the burials described by Garth (1952).

ARTIFACTS WITH THE BURIALS

An examination of the soil and burial stratigraphy convinces us that the burials all stem from one cultural horizon. Artifacts taken from the graves may, therefore, be considered as a cultural and temporal unit. Differences, however, appear among the burials themselves that will indicate either cultural change or decided individual preferences during the inhumation period.

For example, the pieces found with burial 4 set it off from the others, at least from the viewpoint of the chipped stone. The large basalt blades (pl. 52, *a*, /21 and /23) had not been previously associated with a burial complex. Their occurrence, at the nearby mainland site 35–UM–7 (Osborne and Shiner, 1949), under a solid stratum of mussel shells, left no doubt as to the antiquity of the forms from burial 4, and others. The blades, such as /23 and /21, were presumably knives or tips of spears or lances. The use of the bow and arrow, coincidently with the manufacture of the basalt blades (at least in the period of burial 4 when basalt was employed) had not been certain before the artifact shown as plate 52, *a*, /22 was found. This point, was no doubt similar to the ones used during later cremation times. It had been broken at the corners and points. It was examined by Dr. George Goodspeed, of the Department of Geology, University of Washington. He stated that it is extremely fine material from the sides or top of a flow.

The gaming piece (pl. 52, *b*, /26), found with burial 4, indicates that the hand games so characteristic of the Northwest have great chronologic depth. When we have more finds of this type a study of gambling on both archeological and ethnologic levels will be in order.

Burial 4 artifacts were discussed first because of the generally locally conceded earlier types of the associated artifacts. Burial 1, to be considered next, also had a basalt point (pl. 52, *a*, /11) but the facies of the artifact is different. As far as we are aware the deep basal-indented, long-eared, triangular points (pl. 52, *a*, /6) chalcedony and jasp-opal, do not occur in basalt. These are the points or knives that Garth (1952) and others call "mule ears."

We are, in the Plateau, in the beginning stages of use of the binomial system of designation for points and knives. Tentatively, we are inclined to accept this picturesque name that Garth's collector's use for this type, which is probably a knife, and call it the Columbia Mule Ear knife (see Appendix). To the senior author it is an antecedent form of a later, widely spread pentagonal type with a shallow or no basal notch, weaker ears or none, short, straight shoulders similar to that of the left side of plate 52 *a*, /6, and either incurving or excurving sides.

The bone piece, plate 52, *b*, /10, is not certainly an awl. Its condition renders a diagnosis impossible. We have called the two items shown in plate 52, /8 and /9 (also found with burial 1, a male) war club heads. They are similar to the items that Spinden (1908, p. 187, pl. VIII, 33) calls digging-stick handles. It has also been suggested that they were used as shaft smoothers, although this seems dubious.

The notched, large, basalt point with expanding, incurved base (pl. 52, *a*, /11) had not previously been found in a cultural association, although points of the type are not rare. None has been found, to our knowledge, with contact material. They are probably arrow points but differ widely from the others at Sheep Island.

Burial 7 yielded a number of interesting artifacts. First, there were fragments of several antler wedges. Plate 48, *b*, /73, /141, and /39 were the most photogenic pieces. At least one of these wedges, /141, was 8 or 10 inches long. This is evidence of woodworking, or at least wood splitting. Items /37 and /139, plate, 48 *b*, are bipointed, heavy bone. They may have been projectile points, barbs, or the central piece of the compound toggling harpoon so usual in the Northwest. The eyed needle, /33, is typical of the shorter mat needles. Although the mat needle is essentially a woman's tool, this one was found with a male. Fragmentary points, /140 and /40, may be needle points, awl fragments, or points of pieces such as /139 or /37. Beaver teeth chisels or gravers, /36, appear to be an ubiquitous tool. The U-shaped piece, in poor repair, is one of our minor local mysteries. Items of this type have been found the length and breadth of the Columbia valley. We have no defensible theories as to their use.

The short, wide, lamellar flakes, /44 and /67, chalcedony, may have been cutting edges or blanks for projectile points. A number of pieces which were interpreted as chipping material were found with burial 7, including a fragment of a nodule of brown jasper. Item /38, jasp-opal, is unfinished as is /43, chalcedony. Item /35 may be a finished knife of the type illustrated by Barth (1952, fig. 36, *o*). If so it is rather more crude than most of its type. The conclusion is not improbable that burial 7 was buried with his chipping kit. The steatite pipe stem is of the type described by Garth (1952, p. 49, and illustrated in fig. 38, *e*). Numbers /136, /137, and possibly /42 (jasper, chert, jasper) may well represent a precontact form. They are elongate but with the square notches and shoulders, and rectangular, small stems that characterize several of the points from the cremation pits (pl. 55, *a*, /108a) and some to be described from burial 17. A statement as to their relationships is not in order here. They have been found on the lower Snake River in a large precontact housepit village (45–FR–5). Point /42 (pl. 48, *b*) may be of a different type or may be an awl (Garth, 1952, fig. 36, *j*). All in all the finds from burial 7 have been most helpful in establishing the complex of its period. When the archeology of the Plateau enters a more synthetic phase such data may be employed much more fully than here.

Burial 8, a female, has a single artifact, a Columbia Mule Ear knife, agate (pl. 52, *a*, /32). One wonders if its excurvate edges are not an aspect of the original shape of the pieces and if the incurving ones of No. /6 could not be the result of repeated sharpenings. In that event the straight shoulder sections would form at the region of hafting. A knife might well be buried with a woman.

Burial 10, an infant with a long basalt pestle, killed, has been mentioned. As with all of its type this pestle has a square-cut bottom or working face. Three large scars of flakes broken off from the bottom, and numerous small ones, indicate occasional rough use. It is thought that these pestles were used with wood mortars and with flat stone mortar bases such as the surface find (pl. 54, *x*) possibly fitted with basketry hoppers. Spinden (1908, p. 187, pl. VI, 18) and others record this trait for the Nez Percé and other Plateau groups.

Burial 15, an adult male, is unusual in that the associated artifacts were a few scraps of dentalium, a garnish usually reserved for burials of the very young.

Burial 17 is of interest not only because of his unfortunate death but because of the associated artifacts. Nine points were presumably shot into the lower torso of this male. One of them, shot from the right, and slightly from the rear and above, penetrated the depth of the point into the body of a central lumbar vertebra. Eight of the points, including the one in the bone, are illustrated in plate 50, *b*. The points are typologically a unit. Although there may have been a subdistinction between such items as /78 and /75, with its deeper notches and longer barbs, it is likely that individual differences in chipping techniques, or material, are the true explanations. The barbs of /81 have been broken from the piece. It is obvious that these points are also typologically the same as the series illustrated in plate, 55 *a*, /84, /105, /108 *a–d*. Although such points occur among the later classic Columbia "jewel points" with their deep corner or basal notches, raking barbs, and perfected chipping, it has so far appeared to be true that they are alone in the earlier sites. Whether they may be looked upon as a prototype of the later points, or a completely independent, but very similar, albeit more crude, type remains to be seen; presumably they are the former. It is of interest that basalt points of this type were in use at Sheep Island in the later cremation times, yet that these points of the same type, shot into the earlier burial, were all cryptocrystallines. Basalt chipped work has, as was stated, been taking its place as generally archaic in the area. The simple, perhaps too simple, explanation for this situation would be that burial 17 was killed by a neighboring group, specializing in the cryptocrystallines, while the conservatives in the region of Sheep Island, although they partook of the same cultural traditions, still clung to basalt as the proper stone for points. Concentrations of basalt chips were found with the burial. They may or may not have been buried with him.

Again, on a wholly tentative basis, without an adequate knowledge of vertical or horizontal or cultural distribution, but firm in the conviction that things must start sometime, and it may as well be now, we are going to name the type. The name proposed here is Wallula Rectangular-Stemmed. The data that we have appear in Appendix 1.

The long, slender bone implement (pl. 50, *b*, /83) was at first thought to be a fishhook barb. It is possible that, in view of the situation, it may be a weapon.

Other than the dentalia which were often associated with infants (when they had nonperishable grave goods) a *Haliotis* pendant was found with burial 11. It will be of interest if further sites show a correlation of shell and infants. Such a situation might hark back to a period when dentalium shells were beads and not money. This occurrence of *Haliotis* at an early level in the Columbia Valley bespeaks connections to the south or west that might be looked upon as cultural straws in the wind. It is not possible to state whether the shell is a Californian or Northwest coastal species; it is probably the latter.

An aspect of the burial pattern, which cannot be well delineated, partly because of the loose sand in which the burials lay, is the nature of the shrouding. Enough fragments of matting were observed with the bones to indicate that wrapping in mats was standard burial practice. Sometimes, perhaps, a wood cover or bark covering of the corpse may have served. Fire remains associated with the grave are too few to enable us to suggest the use of the element in a mourning ceremony.

ARTIFACTS FROM THE MIDDEN

Strictly speaking, true midden in the sense of living accumulation was absent at BN-55. No animal bone was found. There was, however, a disturbed stained fill both above and below the silt levels that is here called midden. Other than numerous flakes, some fragments, and two chipped pieces (pl. 54, /2, /29) all the artifacts found in the general fill were heavy digging tools or choppers. The chipped pieces are so few that they may have resulted from graves disturbed possibly by the Indians, or they may have been lost. Artifact /2, a basalt point, is the same type as plate 52, *a*, /11, which had a burial association. The quartzite piece (pl. 54, /29), probably a knife blade, is an unusual artifact. The type has been found nearby in a contact site (45-BN-3, Osborne, 1957, fig. 3, Ikd, p. 75). The piece is percussion chipped; the edges and point are dulled intentionally, or at least so it appears. No wear facets or areas of use chipping can be seen on the peculiar piece.

The heavy tools, probably nearly all quickly made digging aids, hammering or chopping tools, were not numerous. All were no doubt used in working around the burials or cremations (and sheds, if such ever existed). Garth (1952, p. 50, fig. 39) calls the implements that are illustrated in plate 53, *a*, /25 and /48, hand adzes and suggests that they were used in canoe manufacture. We find ourselves in complete disagreement with this and feel that the tools were used in digging. They are not at all the types that one can visualize as having been used in fine carpentry. Of course, no tools that fit well with our present conceptions of canoe makers' adzes were found at 45–BN–55, nor were the artifact series usually found at a dwelling-midden site present there. It is entirely possible that the site, at least the burial portion, existed before the fine jadeite, anthophyolite, and serpentine adzes, or techniques of their manufacture, began to infiltrate the area from the North. These fine adzes probably hark back to the woodworking coast of British Columbia, or the near coast and, as has been stated, are certainly later in the Plateau than our earlier finds. The tools that Garth calls basalt adzes (Garth, 1952, pl. 50) are presumably the objects that we call choppers.

The heavy, often nondescript, hand tools of the varieties shown in plate 53, *a*, /69, /56, /45a, and plates 54, and 53, *b*, /20 all have rough, battered and/or percussion chipped edges. Possibly the digging tools (pl. 53, *a*, /25 and /48) were large choppers rather than digging tools. In any event these rough and ready tools are not rare on any Columbia River site. They have obviously served a variety of purposes. Often it is difficult to be sure whether or not the splintered edge is the result of intentional chipping or is splintering from hammering blows. We see these heavy tools as a wide and deep aspect of Plateau culture and recognize them as worthy of intensive study, at least after more data are accumulated.

Plate 53, *a*, /63 and /70, are typical hammerstones; plates 51, *b*, /18, and 54 show the top, tri-pointed, of a mallet pestle. It shows evidence of heat and is indubitably a cremation pit piece. One artifact not illustrated should be mentioned. It is an amphibolite, elongate cobble (36.5 cm. long by 10 cm. thick) which shows the beginning of reduction to a long pestle. It is roughly triangular in cross section, and broad bands of pecking, down the corners of the triangle, illustrate the method of stone working employed.

ARTIFACTS FROM THE SURFACE

The lower end of Sheep Island, together with the southern beach, formed a moderately good hunting ground for coarse artifacts.

Plate 53, *b* (exclusive of item /20) is devoted to the pieces from the island surface. It is of significance that the tools from near the water's edge were all net sinkers of the 2- or 4-notched varieties, or were coarse, igneous-flake cutting edges. Three typical ones are illustrated in plate 53, *b*, /5d, /5h, /5f. Presumably the large flakes, all stone pieces easily found and sharpened or otherwise prepared on the beach, functioned in scaling and cleaning fish after they were netted or speared. A central fragment of a fairly large obsidian blade, at least 4 inches long, was also picked up on the surface. Obsidian is not found on the shingle beaches of the Columbia, as are most of the cryptocrystallines that were used.

The small mortar and short pestle (pl. 51, *b*, /5a and /5b) are not unusual items. The mortar was flattened on the bottom but had no pecked depression as has the illustrated surface. The depression shows a use surface, so the object is not merely an unfinished piece.

As far as materials are concerned jasper leads for the burials: Jasper (6), chalcedony (5), basalt (4), opal (3), and jasp-opal, obsidian, chert, and agate each have 1 occurrence. For the cremation pits, basalt (6), jasper (4), opalite (3), and chalcedony, flint, obsidian and petrified wood, 1 each, is the order of preference as reflected by our data. It appears that these are aspects of the same series although if all chipped artifacts, flakes, scrapers, and other artifacts are considered, it is noted that basalt and opalite were preferred by the cremators, while the people who buried had more catholic tastes. This count does not fit with our belief that basalt was preferred in the older periods and calls attention to the need for further examination of the concept.

The weights unanimously indicate smaller and lighter points and blades for the later cremation period. This is also true if the various large blades are eliminated from consideration, largely because of the large points /136 and /137, the Mule Ears /6, /32, and /12 and the large basalt point /11. However, the general run of points, cryptocrystalline, with burial 17 ran heavier than the basalt series from cremation pit 1. There can be small doubt that this indicates a process of change in weapons, probably a refinement of the bow and arrow complex.

CREMATION PITS

Superimposed upon figure 43 are outlines of the cremation pits as furnished us by Garth in 1951. Garth has in his possession profiles of these pits, and has given us copies of them. There is little that we can add to these figures and to Garth's report (1952, pp. 40–43). There were, when the River Basin Surveys crew opened the site, some undisturbed portions of the two cremation pits remaining. They were near stakes 6 and 7CL (Garth's pit 1) and near stake 9CL (pit 2). The remnant of pit 1, a fragment of the periphery or edge, was a rough rectangle about 2½ feet by 2¾ feet. This fill was arbitrarily divided into two levels (A and B) which were up to 10 to 12 inches thick. The undisturbed remains of pit 2 lay below 12 to 14 inches of disturbed soil. This small deposit was only about 1 foot by 9 inches by 6 inches deep.

The number of objects found in the pits (20 in pit 2, 122 in pit 1) form an insufficient base for a discussion of that aspect of burial culture. The data which we have should, however, be offered and added to that of Garth's (1952). Plate 55 illustrates the categories of material which we screened from the remnants of the cremation pits or found, obviously subjected to fire, nearby. They may be presumed, for archeological purposes, to be from a cultural unit. The division of the remnants of cremation pit 1 into two layers proved unnecessary.

Projectile-point-preferred materials were obviously basalt and opalite. From the meager collection it would appear that stemmed forms were largely restricted to basalt and obsidian, while oval and larger blades (which may or may not have been stemmed) were of opalite, jasper, chalcedony, etc. Opalite, of course, is not tolerant of the high temperatures which in no wise injure the basalt. Hence the latter may be overstressed here.

Descriptions are to be found in the lengthy captions accompanying plate 55, which illustrates most of the objects found in the pit remnants. Specific information concerning the projectile points can be found in table 3.

The oval points and the diagonal or square-notched points with various stems and side curvatures, in basalt or cryptocrystallines, are what Osborne now regards as an "upper middle" in the Middle Columbia projectile points developmental sequence. These varieties lasted into the modern period and are, in even small collections, found with the late highly refined and symmetrical points with deep basal or corner notches, smoothly incurvate sides and parallel-sided or expanding stems.

The hole in the slate piece (/112) is biconically drilled. The bone items are nondescript. The parallel, usually encircling grooves or cuts on several pieces is the only decorative form shown (cf. /112, pl. 55, *a*). Both working objects—antler wedges, projectile points, awls, needle or skewer—and personal decoration pieces—beads and combs, pendants or bracelets—are represented.

Ninety-six plain bird-bone beads, of the types of /122, plate 55, *b*, form the major part of the artifact recovery from the cremation pit remnants. Eighteen dentalium shells or fragments and one olivella fragment complete the shell inventory. A piece of hematite (BN–55/147), crumbly and solidified by fused sand but otherwise unaltered, appears to have been an included paint offering.

The great heat of the fires is evidenced in a number of ways. Large pieces of cryptocrystalline were thoroughly altered to a splintery light-gray material indicating that they had been held at red heat for a few moments. Bones were warped and lumps of sand several inches in diameter were fused. One such piece, found on the surface, had fused within or beneath a burning fabric, possibly a fine coiled basket. Distortion of the semimolten sand has been sufficient, unfortunately, so that it is not possible to certainly diagnose the piece.

TABLE 3.—*Projectile points and blades*

No.	Weight *(Grams)*	Dimensions (*L*×*w*×*th*)	Material	Type and association
45-BN-55/2	5.4	5.2×4.4×0.6	Basalt	Large stemmed point (general fill).
/6	12.2	4.7×2.2×0.6	Chalcedony	Columbia Mule Ear knife (burial 1).
7	(?)		Altered	Wallula Rectangular Stemmed point (burial 1).
/11	5.5	4.2×2.1×0.4	Basalt	Large stemmed point (burial 1).
/12	3.5	4.2×2.1×0.4	Jasp-opal	Small Columbia Mule Ear? (burial 1).
/14	[1]	?×?×0.6	Chalcedony	Point (burial 1).
/16b	6.7 (app.)	?×1. 7×0.7	Opalite	Large oval point (cremation pit 2).
/16c	[1]	3.7×2.4×0.6	Flint	Point or knife (cremation pit 2).
/16d	[1]	?×?×0.6	Petrified wood	Probably knife (cremation pit 2)
/19a	[1]	3.6×3.1×0.5	Jasper	Blade (cremation pit 1).
/19b	[1]	3.0×2.2×0.7	Chalcedony	Point or knife (cremation pit 1).
/21	48.9	10.6×4.2×0.6	Basalt	Large blade (burial 4).
/22	[1]	2.0×?×?	do	Wallula Rectangular Stemmed point (burial 4).
/23	[1]	6.5×3.5×0.5	do	Large blade (burial 4).
/27	[2]			Burial 6.
/32	10.2	4.6×4.4×0.6	Agate	Columbia Mule Ear (burial 8).
/35	19.5	6.8×2.8×1.2	Opal	Unfinished? point or blade (burial 7).
/42	[1]		Jasper	Point (burial 7).
/43	[3]	8.3×3.5×1.1	Chalcedony	Blade or scraper (burial 7).
/44	[3]	4.9×4.1×1.0	do	Scraper or blade (burial 7).
/67	[3]	4.2×2.8×0.3	do	Burial 7.
/74	1.0 (app.)	2.8×1.5×0.3	do	Wallula Rectangular Stemmed (burial 17).
/75	.9	2.8×1.5×0.3	Jasper	Do.
/76	[1]	?×1.3×0.4	Opal	Do.
/77	[1]	?×?×0.3	Obsidian	Do.
/78	1.5	3.3×1.1×0.4	Black jasper	Do.
/79	[1]	?×?×0.4	Jasper	Point (burial 17).
/80	.8	1.8×1.1×0.3	Opal	Wallula Rectangular Stemmed (burial 17).
/81	1.1	2.8×1.1×0.4	Jasper	Do.
/82	[1]	?×1.0×0.3	do	Do.
/84	.5	2.1×1.2×0.15	Basalt	Wallula Rectangular Stemmed (cremation pit 1).
/105	.8	2.6×1.3×0.3	do	Do.
/108a	.6	1.9×0.9×0.2	do	Do.
/108b	.8	2.4×1.0×0.3	do	Do.
/108c	[1]	?×1.0×0.25	do	Do.
/108d	[1]	?×0.9×0.2	do	Do.
/109	[1]	?×0.9×0.5	Obsidian	Wallula Rectangular Stemmed? (cremation pit 1).
/126	2.6	?×1.9×0.4	Opalite	Probably broken, point (cremation pit 1).
/127	[1]	?×1.2×0.5	do	Oval point (cremation pit 1).
/128	[1]		Jasper	Knife? (cremation pit 1).
/129	[1]		do	Knife (cremation pit 1).
/130	[1]		Opalite	Knife (cremation pit 1).
/131	[1]		Jasper	Large point? (cremation pit 1).
/136	3.4	6.2×1.1×0.5	do	Long point, variant of Wallula Rectangular Stemmed? (burial 7).
/137	2.9	5.6×1.0×0.4	Chert	Do.

[1] Broken material.
[2] Altered and eroded.
[3] Blade.

Another piece of fused sand shows the impression of a flat board. It is only one-half inch square, not large enough to be admitted as evidence as to burned structures.

OSTEOLOGICAL AND ORGANIC REMAINS

No certain deposits of food or of bones which may have been food remains were recorded with the burials or in the fill. Fish bones were, however, found rarely throughout the deposit. No differences of association as to burial areas, stratigraphy, or section of the deposit existed. They are therefore listed below as of the whole site. Dr. Arthur D. Welander identified them for us. The pharyngeal teeth of cyprinid fish related to carp or squawfish, probably chub (*Mylocheilus caurinus*), are represented; vertebrae of Cyprinidae and Catostomidae (suckers), three caudal vertebrae of a large salmonid, probably *Oncorhynchus tshawytscha* (chinook salmon), and miscellaneous bones were represented. These bones may have been left by the Indians or they may well be jetsam.

PREVIOUS WORK, DISCUSSION, AND CRITIQUE

Garth's paper (1952), although vitiated by a lack of the ground plans, profiles, photographs, and other data, that are so necessary to an understanding of an archeological manifestation, has brought forth some interesting factual data. A large number of errors, many of them admittedly minor, and the use of long discredited speculative works together with weak or peculiar methodologies have combined to present in his paper an interpretation of the middle Columbia that is at strict variance with that of other workers. Inasmuch as no addendum to his report has appeared to rectify or point out any of these conditions, it appears that this is the logical place to present (or rather to re-present) the more widely held interpretations. First, however, the errors in his report must be corrected or indicated:

1. Figure 40, p. 46, tribal and archeological map. The map appears to have been taken from Spier (1936). The work of Ray (1936) and Ray et al. (1938), the latter published at the invitation of Spier, offer more recent and consequently more thorough data on tribal boundaries. Garth lists Ray et al. (1938) in his bibliography. Had he made use of the work outlined therein he would, for example, have noted that the Lohim are a dubious quantity (ibid., p. 392).
2. Garth uses the River Basin Surveys trinomial system of site designation which he assumes, I believe correctly, to be well enough known not to need explanation. However, 45–BN–19, in the inset (fig. 41), is used to designate the site dug by Garth, properly 45–BN (Benton)–55. Site 45–BN–19 is a small superficial manifestation at the extreme lower end of the island. The Rabbit Island site, 45–BN–15, is incorrectly listed by Garth as 45–WW–15 in his text (p. 43) and in figure 40. Figure 41, last line, lists site 45–BN–54. Presumably "53" is meant, as 45–BN–54 was never excavated. There is not the slightest propriety in lumping BN–3 and –53 in analysis. BN–3 was a late contact midden and burial site; BN–53 an earlier house pit site only. Data on these sites could have been obtained; they have since been published (Osborne, 1957).
3. This may be carping, but for the record it should be pointed out that "islands composed of fine sand" (Garth, 1952, p. 40) are not so. All have heads and cores of cobbles and gravels probably clustering about basalt outcrops. Those that are known to the authors appear to have well-defined and anciently developed stratigraphy of sand, gravels, clay, mixed soils, and such materials.
4. In addition, a dubiousness concerning the acceptance of Garth's "cremation floors" (pp. 41, 48) must be expressed. These were, without much doubt.

natural, compacted, silty deposition levels which occurred over the whole of BN–55 from 1 or 2 feet to 4½ feet in depth. It is probable that the tops of the cremation pits coincided with one of these deposition layers; a photograph, taken by Garth, but not published, of a cut across one of his "floors" shows the same pedologic situation as plate 47, *b*, of this paper. In the absence of further data they cannot be considered as a cultural trait.

5. References to the cordage and basketry found are unfortunately lacking in the type of data needed. The rod armor might have been more fully described. The string-twined basketry, a peculiar term in view of the well-developed terminology descriptive of basket weaves, was given to Carolyn Osborne for analysis. Unfortunately, she was not informed that there was a publication contemplated and, having a backlog for analysis, did not examine the piece immediately. It is not a hat, but is the bottom of a Sally Bag (Mason, 1904, p. 439, pl. 168). There is no indication from the Weltfish paper that the basketry which she mentions was of the same type (Weltfish, 1932, pp. 113–114).

It is Osborne's present belief that Garth is on the right track when he connects the cremation pits and shed depositories, and the former had so stated this belief in 1950 (since published, Osborne, 1957). However, the evidence now available, and Garth's is certainly the only excavation evidence, is insufficient to establish the connection. The mud dauber nests are certainly corroborative but as evidence they alone cannot staunch the holes in a leaky methodology which permitted excavation of a unique site without the amassing of the type of objective records generally required.

6. On page 49 the word "gorget" is used rather than "gorge" which is presumably intended.

7. Also page 49. The greenish stone, most often used for pounding tools in the area is diorite. Granite is occasionally used. The other pestles are likely andesite.

8. Also page 49. It should be pointed out that red mercuric oxide is not stable and sublimation destroys the pigment. Consequently it is not possible that the red pigment on the cremated bones could have been other than ferric oxide, unless the bones received post-cremation attention from the Indians.

9. The tool that Garth calls a basalt hand adz (p. 50, fig. 39, *a*) which has been found farther up and down the River has been thought by us to be a digging or crude chopping tool. There are no ethnographic data that will help us here.

10. Garth refers several times to "flinty rocks" (p. 50, passim). The cryptocrystallines used by the later cultures of the area were largely chalcedonies, agates, jaspers.

11. There is probably small need to point out the errors on page 51. It is doubtful if many American archeologists would use the old Strong system of projectile-point classification if they were seeking to demonstrate "refined cultural relationships." The Juniper Island site, as Garth mentions, should not be treated as a unit in analysis. None of the material from that site was properly removed. The logic of employing an unknown and dubious quantity as a control, and then placing in the doubtful category any groupings of projectile points that are similar may be syllogistic but it certainly lacks any aspect of scientific analysis. An error in figure 41 has been pointed out (above, No. 2); it is probably not necessary to question the validity of comparing burial artifacts and selected material from midden excavations of differing periods. Too, the double listing of 45–WW–5 is confusing.

Garth lists Osborne (1949) as his source for data on 45–BN–3 and 45–BN–53 (incorrectly listed as BN–54). He has a point total of only 26 from these two sites. In plate IV of Osborne's report (1949) are illustrated 38 chipped-stone pieces; there are 26 to 28 that Garth might have used for his figure 41. He appears to have considered the illustration an adequate sample of illustrated artifacts from the two sites. Had he turned to Osborne's page 36 he would have found further data and a statement as to the actual number of points found, together with a brief categorization of them.

12. It would be of distinct service to workers in the field of Plateau archeology to know what the rectangular shell lip pendants (not illustrated) are. None of the present authors recognize the artifact.

The section above was concerned largely with errors or minor criticisms of Garth's presentation. There follows an examination of what seems, at least at the present, the more serious disagreements between him and other workers in the area. No doubt many of these points will have been noted by other readers.

1. First is the question of exposure "probably on a platform" (p. 41) and painting of the bones with red ocher. None of the bones from the area seen by us indicate a painting although there is a staining which might well have been due to a liberal sprinkling of red ocher during or before the cremation ceremonies. It hardly need be pointed out that the structures of exposure platforms, red ocher painting, and cremations that Garth has reared will not support its own weight, to say nothing of becoming a foundation for a Sahaptin cremation complex. Later (p. 55), Garth appears to have realized that exposure (probably on platforms?) is out of place in the region, for he suggests a possible Plains origin. This is more possible but is of course far more recent than the cremations that he described on page 41.

The University of Washington excavations at Rabbit Island, superintended by Crabtree (Crabtree, MS., 1957) and supported by the National Park Service and Washington State College in 1951 and by the University in 1952, uncovered a cultural and natural stratigraphy:

1. Extended burials with a crude chipped-stone industry, all generally below a hard calichelike layer; (2) above, with burial pits occasionally partly penetrating the caliche layer, was a later complex of flexed interments accompanied by stone artifacts similar to those usually found with historic or late prehistoric burials. It would be of help to have something more of the burial stratigraphy of Garth's child burial (p. 44), but its slight depth (1.6 feet) and burial in compacted sand indicate that it cannot be associated with the old extended burials as Garth attempted to do. The error of inferring close cultural relationships from an "abundance of red ocher" (p. 44) is an old one in Eastern American archeology. It is not necessary that it be repeated in the West. Too, an abundance of coloring here in the Plateau would be considered only a moderate expression elsewhere.

2. Garth (pp. 46–47) has interpreted the Townsend reference incorrectly (Townsend, 1905, vol. 21, p. 282). The conical stacks of wood that Townsend saw were described by travelers from the Fraser River to the Columbia. They appear to have been, thus, a widespread but late burial manifestation. Townsend, therefore, did not mean shed-like structures, as Garth (p. 47) would have it. Osborne (in 1950, published 1957) listed references for this burial type and has speculated that it might be an aspect of the widespread truncated conical wood cist burial (ibid., p. 52) which are often burned off above the burial. Were the sides of these cists extended above ground a small conical structure would result.

It is unfortunate that Garth has not made his data on Wallula burial practices available (see his p. 47). They might be of assistance to other workers.

3. On page 47 he makes the statement that the Nez Percé "seem to have been gradually adopting the Salish type of hollow burial as found among the Flathead." Preceding sentences do not clarify the statement; both the terms used and the suggestion of diffusion need much more full discussion although a reference to the Flathead source (Turney-High, 1937) might have helped the reader puzzle out some of the meaning.

4. Pages 47 and 48 contain a series of traits which supposedly connect the handling of the dead in the burial shed of just precontact time with more recent Wallula and Yakima practices. Wrapping of the dead (widespread in North America, found with the flexed burials of a number of excavated sites in the Plateau), "extended position on the back" (data on this must be presented or developed before it can be accepted), "readjustment of the bones" (largely a speculative development) are listed as traits which were presumably old and have persisted. That the latter trait led to cremation or secondary burial is partly contradicted by Garth's quotation from Lewis and Clark (pp. 45–46). In this the explorers mention a "pile of bones" near the center of the depository shed. The reasoning which connects "exposure in canoes" (really canoe burial; Ray, 1938, pp. 48, 74–76), the above-listed traits, and a recent Wallula burial method felicitously called "exposure" underground (p. 48), in order to prove that the Wallula and Yakima once exposed, carries no conviction. The data as used are open to question, as has been seen.

5. On page 50, next to last paragraph, there is given a short list of traits that suggest cultural stability for a period in the Sheep Island to Wallula area. There can be no disagreement as to the stability. It went, however, much farther north. With the possible exception of the peculiar two-piece pipes, Garth's short list would have been at home, at least as far up river as the Wenatchee area, just short of 150 miles north and deep into the area of Salish speakers.

6. None of us has been able to follow Garth's reasoning in his comparison of point types (p. 52). The old Wilson-California Strong system of point classification is too insensitive to bear a comparative load such as Garth puts upon it. Furthermore, it is hardly necessary to point out that complexes from individual sites should be compared, not isolated aspects such as points judged similar. The second column in the table makes an approach toward the reduction of site remains to percentages. A careful reading of the material following the table helps little. Garth discredits a comparison of a low total site with a high total but accepts the reverse. It would not seem that there would be an appreciable difference in significance. The low totals and type of processing (fig. 41) should cast doubt enough. His statement that the "similarity between Wallula and Berrian's Island seems also to be significant" (column 1, middle) is reversed at the bottom of the same column where he states that "Sheep Island and Wallula culture manifestations are decidedly different from those of the historic cedar cist people" (Berrian's Island, Osborne, 1957). The closest percentage correspondence that he has is, as a matter of fact, the Sheep Island burials and the Berrian's Island (45–BN–3 lumped by Garth with 45–BN–53).

7. Garth's assignment of the differing cedar cist and Sheep Island burials to different linguistic groups is close to being anthropological sin. Cedar-lined grave cists, polished celts, thick-stemmed heavy pipes, and sandstone arrow smoothers do not, without further digging and distributional studies, point to the Salish of the upper Columbia. As a matter of fact sandstone and tufa arrow smoothers are not conspicuous in the sites excavated so far in historic Salish territory, and, furthermore, long thin-stemmed pipes are found in the cedar cists. Of course Lewis and Clark did not report bands of Salish and Sahaptin interspersed along the Columbia from The Dalles to the Snake (p. 52, column 2). True, the peoples were not warlike, and trading and visiting Salish groups must have often appeared along that part of the river. However, a bold statement that would lead one to believe co-existence in the area is not in order. Garth was wise to use a question mark when he described Hunt's "Akiechies" as Salish (Rollins, 1935, pp. 302–304). He was, of course, following Teit (1928, p. 94). Ray et al. (1938, p. 393) state that "Akai-chie seems to be *a'kaitei*, 'people who eat salmon,' a Bannock word for Sahaptins. . . ." Again Ray et al. (1938) should have been consulted as well as Teit (1928, p. 94) before accepting the latter's equation of "*Stia'kEtux* or *Tia'kEtux*" (the former is properly *Stia 'kETEmux*) with Akieches. Ray's (Ray et al., 1938, p. 393) Umatilla, Kittitas, and Wenatchi informants interpreted these terms independently as reference to a "semi-mythical people 'from the North, who appear at night in heavy fur clothing and steal things, then disap-

pear before daylight.' All denied that the term designated a tribe." The Umatilla and Kittitas (both Sahaptin) forms of the word (ibid., p. 393) indicate that there can have been no misunderstanding.

On the same page (ibid., p. 393) the word *Tuschepaws* or a variant is parenthetically localized as the "Flatheads or a band thereof." Hodge (1910, p. 853) lists the group seen by Lewis and Clark as probably Kutenai; Gatschet states that Tushipa is a Shoshoni term for tribes living to the north of them, including the Nez Percé as well. It appears, according to Livingston Farrand, that the Lewis and Clark usage would have included "Walla Walla and possibly other Sahaptins." A number of usages of the word are given in the Handbook. None points to real identification with a Salish group except Hohilpe which Ray et al. (1938, p. 389) suggest as Colville.

As to the *NekETEmeux*, concerning whom Garth repeats Teit's (1928, p. 96) "tradition," Ray et al. (1938, p. 392) failed to find confirmation of the existence of the group, or of any Salish group at The Dalles. His Umatilla informant, however, suggested the Umatilla term *nik'atimiux*, "persons who do not act sensibly," as applied to an alien people. It may well have been a usual reference to the aboriginal transients of the great Dalles trading center.

On page 53, Garth indicates his reasons for believing that the Pishquitpah or Pishquow were Wenatchi or Yakimaized Wenatchi. Hodge (1910, pp. 262, 263), who used the same sources as Garth, equates the Pishquow with the Wenatchi and the Pishquitpah with the Sahaptin. Ray et al. (1938, pp. 389–90, note 19) cogently suggest that the term is Sahaptin and cannot be identified with the Salishan Wenatchi.

No information appears to be available to cast further light on the Met-cow-we which Garth identifies as the Methow from the lower Methow River north of Wenatchee. Ray et al. have no data on them but he found no evidence of Salish in the southern area, as has been mentioned. Certainly the true Methow were not "true horse Indians" as Garth states.

8. Garth lists (p. 53) as evidence for a Salish migration into the Yakima and Middle Columbia valleys: Rock slide graves, cist graves lined with cedar boards and rock and, apparently, the carved figure illustrated by Smith (1910, pp. 133, 160–161). First it should be pointed out that these cremations (Sahaptin according to Garth) do not contain contact material. Many of the pit and cedar cist burials do. Hence there is, here, a temporal relationship. Yet there is not as far as we are aware, other than Garth's Walla Walla (Wallula) (p. 47) and the Wahluke and Sundale (pp. 44, 54) and a few other secondary burials and partial cremations, any evidence of the ways by which the large Sahaptin population of the area disposed of their dead, despite a very full survey and much excavation in the McNary

reservoir. The obvious conclusion is that the Sahaptin buried their dead in the pits or cists and the many burials found or reported were Sahaptin. This is a more sensible solution than a postulated migration and an assignment of archeological traits to a linguistic group.

Also, there are facts of distribution that do not tally with Garth's theory. Collier and his associates found no cist type or rock-slide graves above the confluence of the Spokane and Columbia (Collier, Hudson, and Ford, 1942, p. 42), although this area is deep in Salish territory. The antler figure found by Smith does not impress us as being in a "Plains-type dress." Its relationships to the probably improperly called ghost art of the Columbia are indubitable but that art style is ancient and one that was highly developed and certainly centered in The Dalles-Columbia region long before the time that Garth assigns (early historic) for his Salish migration into the area. It would thus controvert his contentions.

9. Strong exception must be taken to the statement (p. 54) that historic Salish culture is "widely divergent" from either the historic Sahaptin or that of the cremation pits. The only wide divergencies would be between the late Sahaptin-Plains cultural overlay and a conservative Salish group such as the Okanagan. Ray (1939, p. 149) points out that—

> in the American Plateau, a linguistic transition occurs, this time involving the Salish and Sahaptin stocks. The boundary crosses the Plateau laterally about two degrees (180 miles) south of the Canadian boundary. Thus the primary cultural division in the Plateau runs parallel to the primary linguistic boundary but nearly two hundred miles north of it! The linguistic boundary itself in no way corresponds to cultural transitions, even of a secondary order.

Possibly the Sahaptin exposed their dead recently; if so, it was probably part of what Ray (1939) calls the Plains overlay. It would seem likely that the cremation pits were Sahaptin inasmuch as they are found in Sahaptin country, but for no other reason. Ethnographers would, one can be sure, be happy to have the data which led Garth to list British Columbia cremation practices (Carrier?) as late. Garth says (p. 54) that there is little evidence of a prehistoric Salish culture in the area; we know of none, and, frankly, have not the slightest background for determining the older manifestations, so far found, as either Salish or Sahaptin.

Also on page 54 Garth lists a series of traits "common to historic Sahaptins and the cremation complex." They may be briefly reviewed here as a finale to this section. Exposure of the dead was very possibly a Sahaptin trait but it was certainly not common to all Sahaptin; its association with the cremations is largely conjecture and should be so labeled. Ray (1942, p. 216, element 5677) lists mat wrapping as almost Plateau-wide, being absent only in northern groups (Carrier, Shuswap, Chilcotin); it has, thus, both a Salish and Sahaptin distribution. Coffins are another question, and speculations on their period and distribution would serve no purpose here. Our feeling that red ocher is not a diagnostic trait in the Plateau has been expressed. Stemmed "arrowpoints" are surely not diagnostic of the Sahaptin. A site near Wenatchee (Salish territory) has about 80 percent of stemmed points. Chief Joseph Reservoir (Obsorne et al., 1952) yielded more stemmed than other kinds. So did The Dalles-Deschutes area and much, for that matter, of western North America. One would need to be far more specific and would need to use a more sensitive typology than Garth's to prove as close a connection as he has postulated. Leaf-shaped blades, polished bone points, hand game bones in sets, and soft string-twined basketry (if by this Garth means soft twined bags and wallets) are all Plateau-wide traits in both historic and protohistoric levels.

One last word: Appreciation is tendered Osborne by Garth for criticism of the manuscript which resulted in the paper. Osborne read part of it, but not all that was published, as a research report turned in to Dr. Erna Gunther, at her request. He made criticisms which, as far as he can recall, were ignored in the published paper.

A FINAL STATEMENT

From our point of view little can or should be added to the foregoing. When Garth's and our data concerning the site itself are considered together, the differences that exist seem to fade in the one body of observations. It is unfortunate, however, that a single investigator could not have exhausted the site. The revisiting of a site, such as this, is often necessary, but data gathered cannot compare in sensitivity with those resulting from one thorough-going excavation. However exact we may consider our techniques they need supplementing by the half intuitive, half experience-resulting judgments and thought combinations that can come best only from working fully an undisturbed site. Especially is this necessary in the shallow sites along the unstable banks of the Columbia.

With the above in mind, plus a caution as to comparisons between cremation and inhumation from the viewpoint of preservation of different materials (flints, opalite, shells, perishables, etc.), it seems wiser to let the matter rest with Garth's and our descriptions.

SPECULATIONS

Speculating, when it proceeds from a moderately broad base of acquaintanceship with a problem, may serve a valuable purpose. At least in a situation such as this it makes available some synthetic thinking which might be of value later and which may lead to more mature theorization and the formulation of problems. It provides trial balloons which may be sniped at or observed.

There is slowly accumulating in the Plateau a backlog of excavations which, as they are written and published, will draw the thinking and working hours of more and more anthropologists into problems that are now largely esoteric. Sites that can give information on cultural sequences in the most easily readable manner, by stratigraphy, are few here. Consequently our knowledge of material culture changes, even limited local ones, are few. There does seem to stand out, however, as an aspect of very old local culture, the basalt industry which made use of large blades, large points, and, in its terminal phases, points of the Wallula Rectangular-Stemmed type made of basalt that probably led directly to the finer, exaggerated, later Columbia points.

Some data on the basalt forms are given here; other information exists, which cannot well be presented in this report (Crabtree, MS, 1957). Basalt chipping has been an aspect of Northwest Indian culture in the Northern Plateau and Coast in recent times. It also flourished, apparently as a complex of greater age, in the Lake Tahoe region of the Central Sierra Nevada (Heizer and Elsasser, 1953). Certainly problems of magnitude exist here: Is the old basalt industry with which we are coming to grips in the American Plateau related to the use of that material in the North and on the Coast? If so, how? Is our material, or are both ours and the Northern and Coastal and the Californian, a part of an old and widespread complex? Can we add to this the material from the desert cultures (this paragraph was written in 1953) of California and some of the pieces sketchily recorded by Osborne in 1941? Following this line of thought, a plan for acheological work along the eastern slopes of the Cascades from Central California north through Oregon and the means to carry it out would certainly reveal many facts pertinent to the development of culture in the Plateau. The Sahaptin connections, through the Moale and Modoc (Jacobs, 1931, Introduction), provide a broad path which, though much overgrown, may still lead back to the origins of much of Plateau stock and culture. Perhaps recently perfected linguistic techniques will aid in this respect.

One thing is certain, that is that the tracing of separate Salish and Sahaptin cultural developments in the Plateau is not now an archeological problem. A great deal can be done historically with linguistic techniques, but the fact that the basic Plateau material culture was, as far as we know now, equally Salish and Sahaptin, renders a solely archeologic assignment of sites to speakers of either language group an impossibility. The archeologist's responsibility, at least here and now, is the historiographic study of culture growth and change in the area.

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APPENDIX

A trial binomial description of certain widely spread chipped items of the Plateau is offered. Perhaps, if useful, it will stimulate further work of this kind.

WALLULA RECTANGULAR-STEMMED

(Pl. 56, *top row*)

Outline: Triangular.

Cross section: Lens or planoconvex.

Edges: Straight or convex.

Base: Partial to complete shoulder notches or corner removal giving a more or less rectangular or slightly expanding stem.

Lengths: Approximately 2.0 cm. to 4.0 cm.

Widths: Approximately 1.0 cm. to 1.5 cm.

Thickness: 0.15 cm. to 0.5 cm.

L–W indices: 25–69.

Weights: 0.5 gm.–2.1 gm.

Material: Jaspers and chalcedonies generally preferred, basalt the preferred material at 45–BN–55.

Technique: Well controlled pressure flaking; commonly specimens of this type are semiunifaced.

Function: Projectile point, presumably with bow and arrow.

Geographical range: Specimens illustrated which seem to conform to this type: Chief Joseph (Osborne, Crabtree, and Bryan, 1952, fig. 110 *i*, *v*, and *aa*); Upper Rockshelter (Mills and Osborne, 1952, fig. 107 *o*, *u* ,*z*); Dalles-Deschutes (Strong, Schenck, and Steward, 1930, pls. 14, *a–g*, 15, *a–m*). The description offered here is based on a series of 44 from the Pot Holes site near Trinidad, North-central Washington (Crabtree, MS., 1957) and 17 from 45–BN–55. Specimens illustrated in the Upper Columbia report (Collier, Hudson, and Ford, 1942) do not seem to conform to this series close enough to include them at the present time.

Historical range: All of the specimens from the Pot Holes site are associated with burials which have trade items of nonaboriginal manufacture (copper); the series from BN–55 is from definitely prehistoric horizons. It would seem then that this type flourished as a late Prehistoric to Early Historic type. Indications are, however, that it has a long history in the Plateau and possibly in adjacent areas.

Remarks: The Pot Holes series is a much neater, coherent series than the smaller BN–55 one. The relationship of this type to the earlier Rabbit Island Stemmed (Crabtree, MS., 1957) has been suggested. The series illustrated in The Dalles-Deschutes report seems, in part, to bridge the gap between this type and the tentatively suggested Middle Columbia Basal-Notched. Presumably Wallula Rectangular-Stemmed is closely related to the Middle Columbia Basal-Notched. They are certainly partly contemporaneous and both are popularly included under the term "Columbia River Jewel Points" because of their fine workmanship and the colorful chalcedonies and agates of which they are made.

MIDDLE COLUMBIA BASAL-NOTCHED

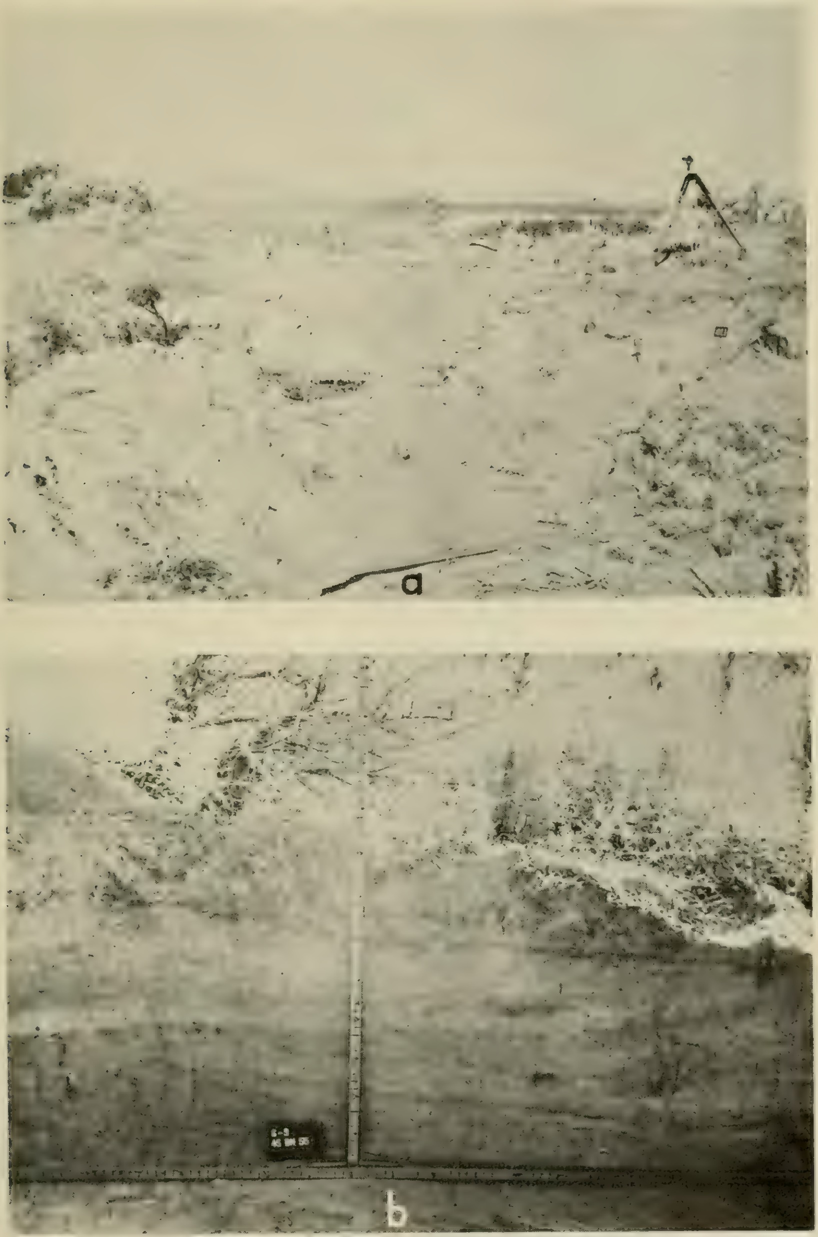
(Pl. 56, *middle row*)

Outline: Triangular.
Cross section: Lens.
Edges: Straight—concave.
Base: Straight or convex, with corner or basal notches.
Lengths: Approximately 1.3 cm.–2.0 cm.
Widths: Approximately 2.2 cm.–1.3 cm.
Thickness: 0.2 cm.–0.5 cm.
L–W indices: 37–74.
Weight: 0.6 gm.–2.7 gm.
Technique: Very fine pressure flaking, uniface forms rare.
Material: Chalcedonies and jaspers heavily favored.
Function: Projectile point, certainly with bow and arrow.
Geographical range: Upper Columbia (Collier, Hudson, and Ford, 1942, pl. III, *t*, *v*, *x*) ; Chief Joseph (Osborne, Crabtree, and Bryan, 1952, fig. 110, *k*, *u*) ; Upper Coulee (Mills and Osborne, 1952, fig. 107, *p*, *q*, *w*, *aa*, *bb*) ; Dalles-Deschutes (Strong, Schenck, and Steward, 1930, pls. 14, *h–m*, 15, *o–z*) ; Pot Hole site 49 specimens, used as basis for this description—of these 23 had concave edges.
Temporal range: A fairly late type in its classic form becoming more distinctive in the latest sites.
Remarks: In some series it is difficult to differentiate this type from the Wallula Rectangular-Stemmed, at least the slightly variant forms, and as has been suggested, this presumably indicates historical relationship.

COLUMBIA MULE EAR, KNIFE

(Pl. 56, *bottom row*)

Outline: Triangular.
Cross section: Lens.
Edges: Straight, concave, convex.
Base: Concave, tending to an oblique angle.
Length: Approximately 4.0 cm.–7.0 cm.
Width: Approximately 4.0 cm.–5.0 cm.
Thickness: 0.5 cm.–0.8 cm.
L–W indices: 60–100.
Weight: 10 gm.–18 gm.
Technique: Pressure flaking for the final shaping, percussion for the roughing out of the piece; this is evident inasmuch as two specimens (of three) are semi-unifaced.
Material: Jaspers and chalcedonies.
Function: Presumably a knife, all specimens found with adhering haft remnants were knives.
Geographical range: A specimen from Pot Holes (WSM–9319) ; 2 from 45–BN–55 ; 11 noted in Dalles-Deschutes report, in which 2 are illustrated, called NBb (Strong, Schenck, and Steward, 1930, pl. 12, *j–k*). None evident in Upper Columbia.
Temporal range: Protohistoric or Early historic at Pot Holes, Prehistoric (late?) at BN–55.
Remarks: This may be a type related to the Pentagonal forms. Relationship, if any, to the long, leaf-shaped concave-based points, as at Pot Holes, not yet determined.



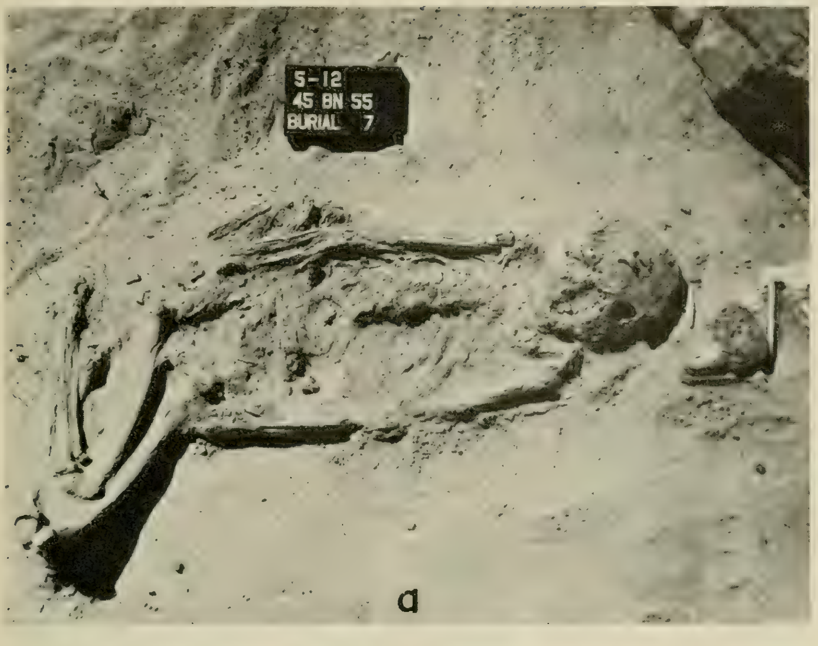
a, View of 45–BN–55 (WSW) downriver before River Basin Surveys excavation. *b*, Profile: stake 11 plus 5 feet, centerline to 11R1 plus 5 feet, looking east.

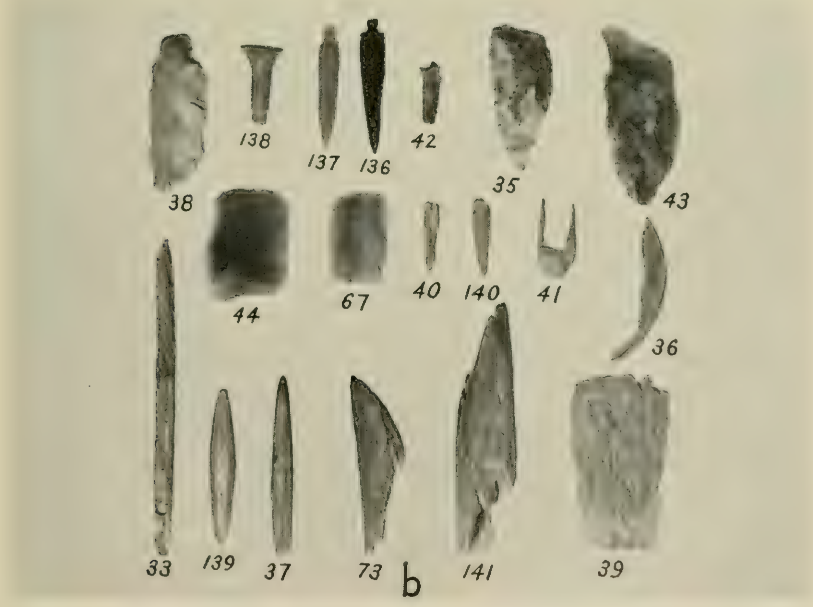
PLATE 48

a, Burial 7, to the south.

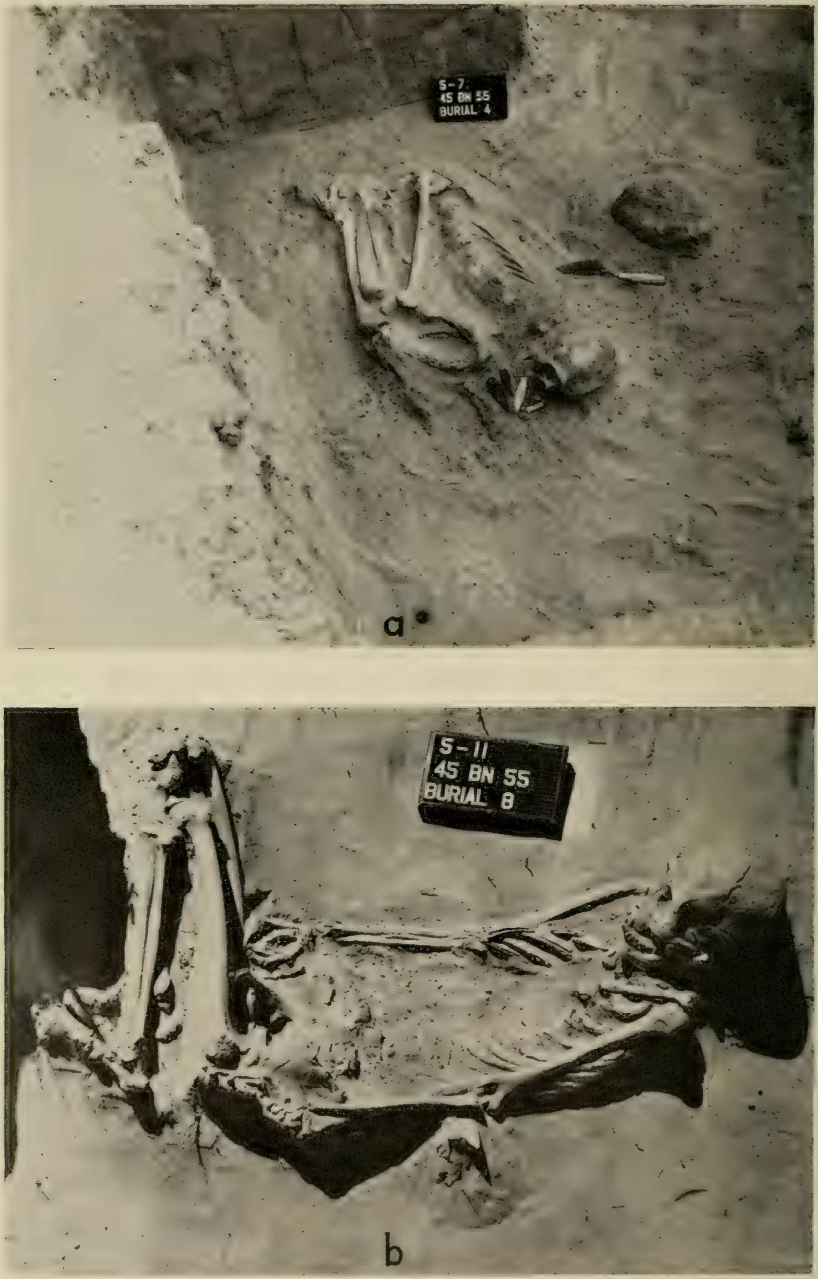
b, Burial 7, stratum IV, artifacts:

33. Bone needle, point missing, perforation biconical.
35. Opal projectile point or knife, 19.6 gm.
36. Beaver incisor (graver) fragment.
37. Bipointed bone object (gaming piece or fishspear prong) 7.2 cm.
38. Jasp-opal blade or scraper, unfinished.
39. Antler wedge fragment, one end ground.
40. Tip of bone or antler object.
41. U-shaped bone or antler object.
42. Jasper fragmentary projectile point.
43. Chalcedony blade or scraper, unfinished.
44. Chalcedony flake cutting or scraping edge.
67. Chalcedony lamellar blade, retouched on one side, large.
73. Antler wedge fragment, tip.
136. Jasper projectile point, 3.4 gm.
137. Chert projectile point, 2.9 gm.
138. Stem end of 2-piece steatite pipe.
139. Bone projectile point or barb, 2 ended.
140. Tip of a bone awl or projectile point.
141. Antler wedge fragment, bit missing, eroded.

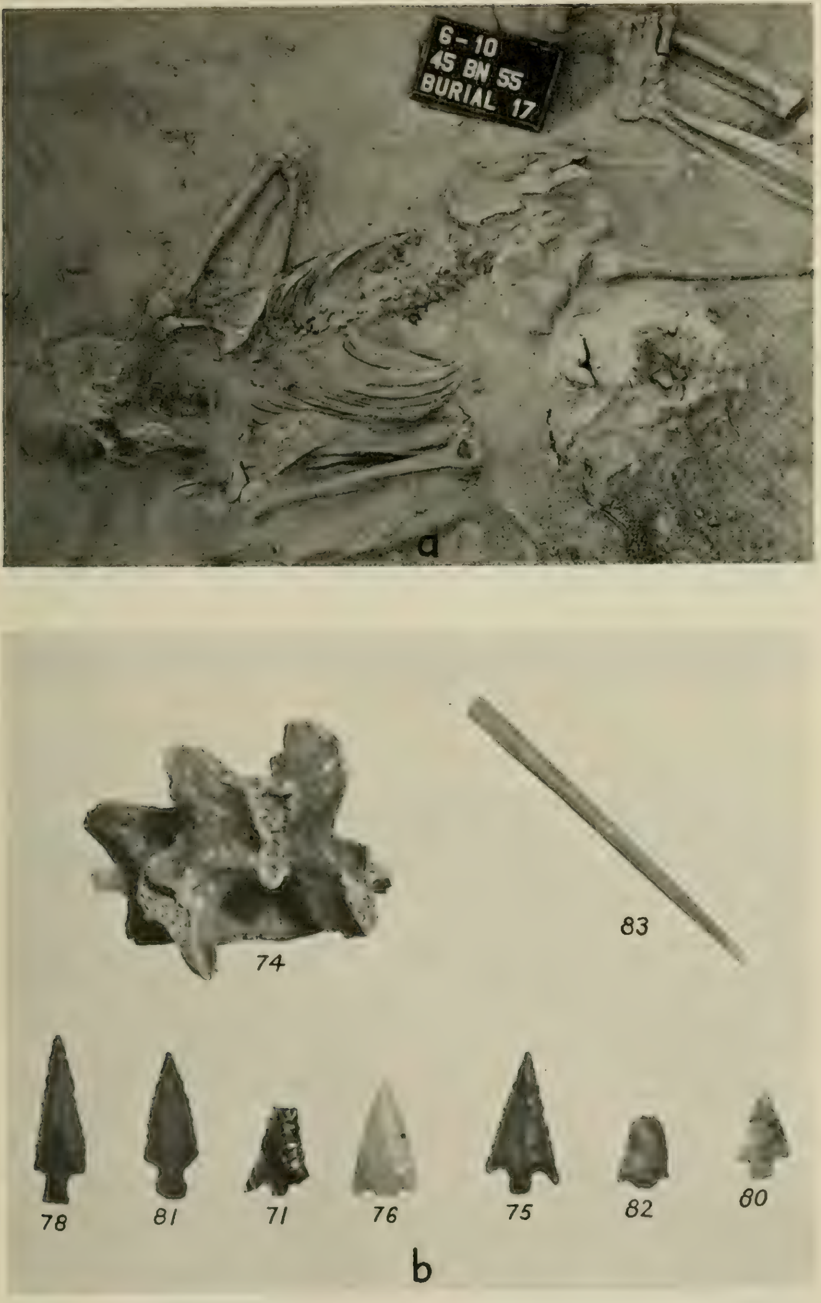

5-12
45 BN 55
BURIAL 7
a


138
137
136
42
35
43
38
44
67
40
140
41
36
33
139
37
73
b
141
39

a, Burial 7, to the south. *b*, Burial 7, stratum IV, artifacts.


S-7
45 BN 55
BURIAL 4
a
S-11
45 BN 55
BURIAL 8
b

a, Burial 4, to the east. *b*, Burial 8, to the south.


6-10
45 BN 55
BURIAL 17
a
74
83
78
81
71
76
75
82
80
b

a, Burial 17, to the north. *b*, Selected artifacts, burial 17, stratum IV.

(For explanation, see following page.)

Plate 50

a, Burial 17, to the north. Note unusual position, either variant burial custom or casual disposal.

b, Selected artifacts, burial 17, stratum IV (No. 83 is 7.5 cm. long):

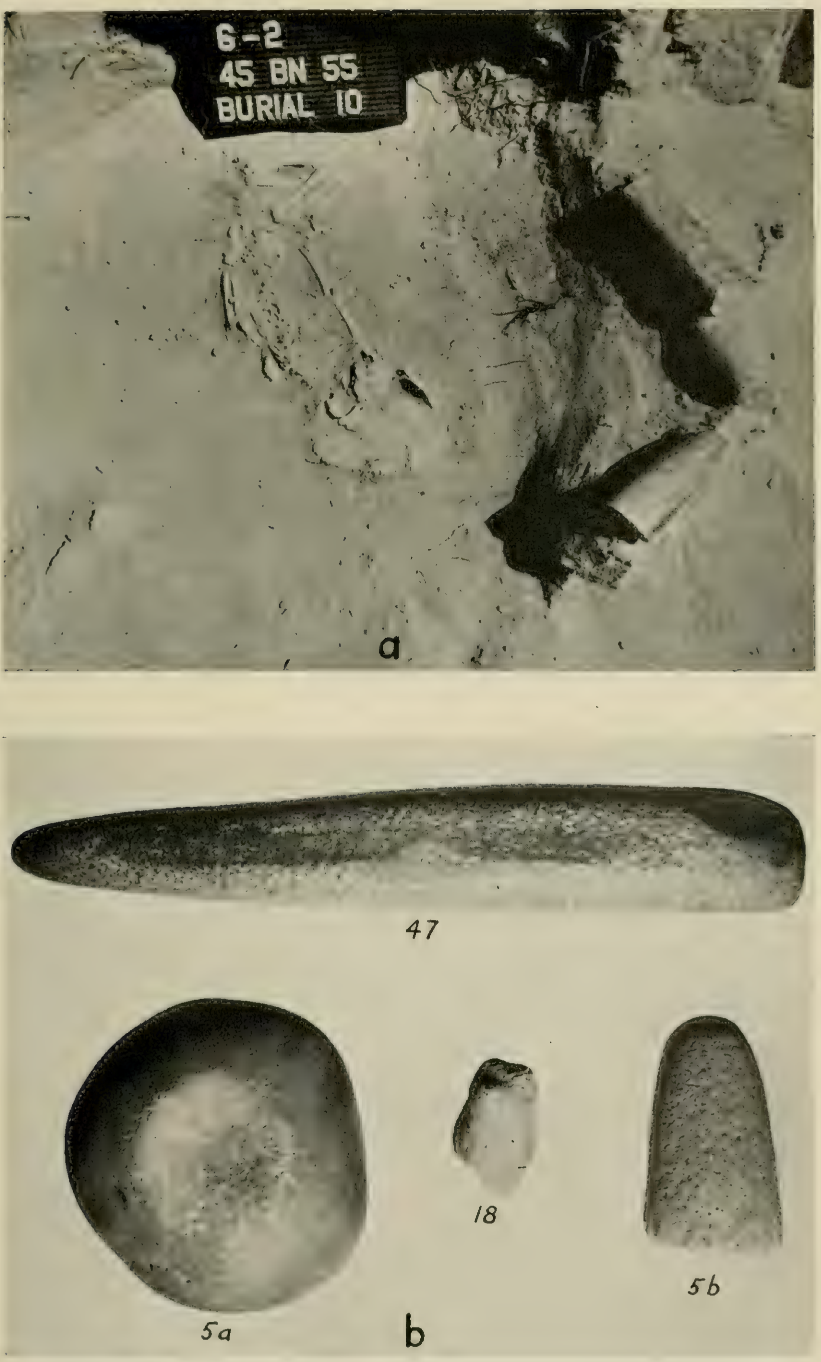
- 74. Chalcedony point embedded in lumbar vertebra.
- 75. Jasper projectile point, 0.9 gm.
- 76. Opal projectile point base broken, 1.3 gm.
- 77. Obsidian projectile point broken. (No. 71 on the plate should be No. 77.)
- 78. Black jasper, 1.5 gm.
- 80. Opal projectile point, 0.8 gm.
- 81. Jasper, 1.1 gm.
- 82. Jasper projectile point, broken.
- 83. Pointed bone object, use unknown, tip broken; in appearance similar to a large herring rake barb of the Northwest Coast.

Plate 51

a, Burial 10, to the north, infant.

b, Mortar, pestles, and mallet pestle handle:

- 5a. Quartzite mortar, surface; flat pecked area on bottom.
- 5b. Granite pestle, surface; 1½ pounds.
- 18. Granite hand maul or mallet pestle, top, 3 tips (see pl. 54) stratum 1 (?), 5/16 pounds, small.
- 47. Basalt pestle, burial 10, stratum IV, 4 11/16 pounds, 38.5 cm. long.


6-2
45 BN 55
BURIAL 10
a
47
5a
18
5b
b

a, Burial 10, to the north, infant. *b*, mortar, pestles, and mallet pestle handle.

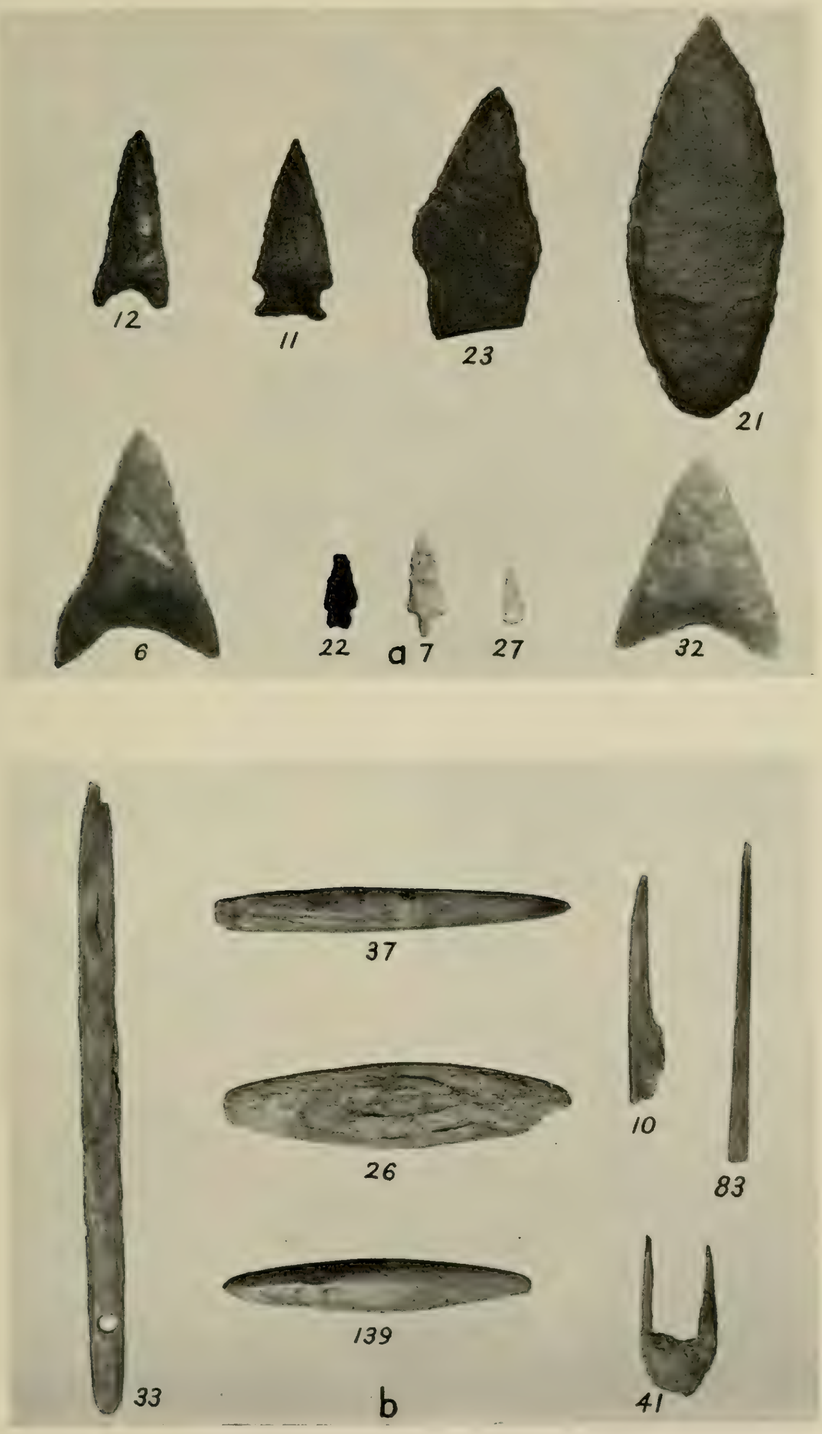
PLATE 52

a, Projectile points and blades, burial associations. (Weights of unbroken pieces are given in grams. No. 21 is 10.6 cm. long.)

6. Chalcedony Columbia Mule Ear knife or point, burial 1, stratum IV, 12.2 gm.
7. Projectile point altered to chalky state, burial 1, stratum IV.
11. Basalt projectile point, burial 1, stratum IV, 5.5 gm.
12. Jasp-opal projectile point, unusual form, Burial 1, Stratum IV, 3.5 gm.
21. Basalt blade, burial 4, stratum IV, 48.9 gm.
22. Basalt projectile point, fragment of base and tip missing, burial 4, stratum IV.
23. Basalt projectile point or blade, burial 4, stratum IV.
27. Projectile point altered to chalky state, fragmentary, burial 6, stratum IV.
32. Columbia Mule Ear knife or point, agate, burial 8, stratum IV.

b, Bone objects from the burials:

10. Awl tip, burial 1, stratum IV.
26. Bone gambling piece, burial 4, stratum IV, eye (?) design.
33. Bone needle, point missing, burial 7, stratum IV.
37. Bipointed bone object, game counter, fish spear piece (?), burial 7, stratum IV, broken.
41. Bone object of unknown use, burial 7, stratum IV, badly eroded (see pl. 48, *b*).
83. Bone object (see pl. 50, *b*) (?), burial 17, stratum IV.
139. Bone point, central piece of compound harpoon point, burial 7, stratum IV.


12
11
23
21
6
22
a
7
27
32
37
26
139
33
b
10
83
41

a, Projectile points and blades, burial associations. *b*, Bone objects from the burials.

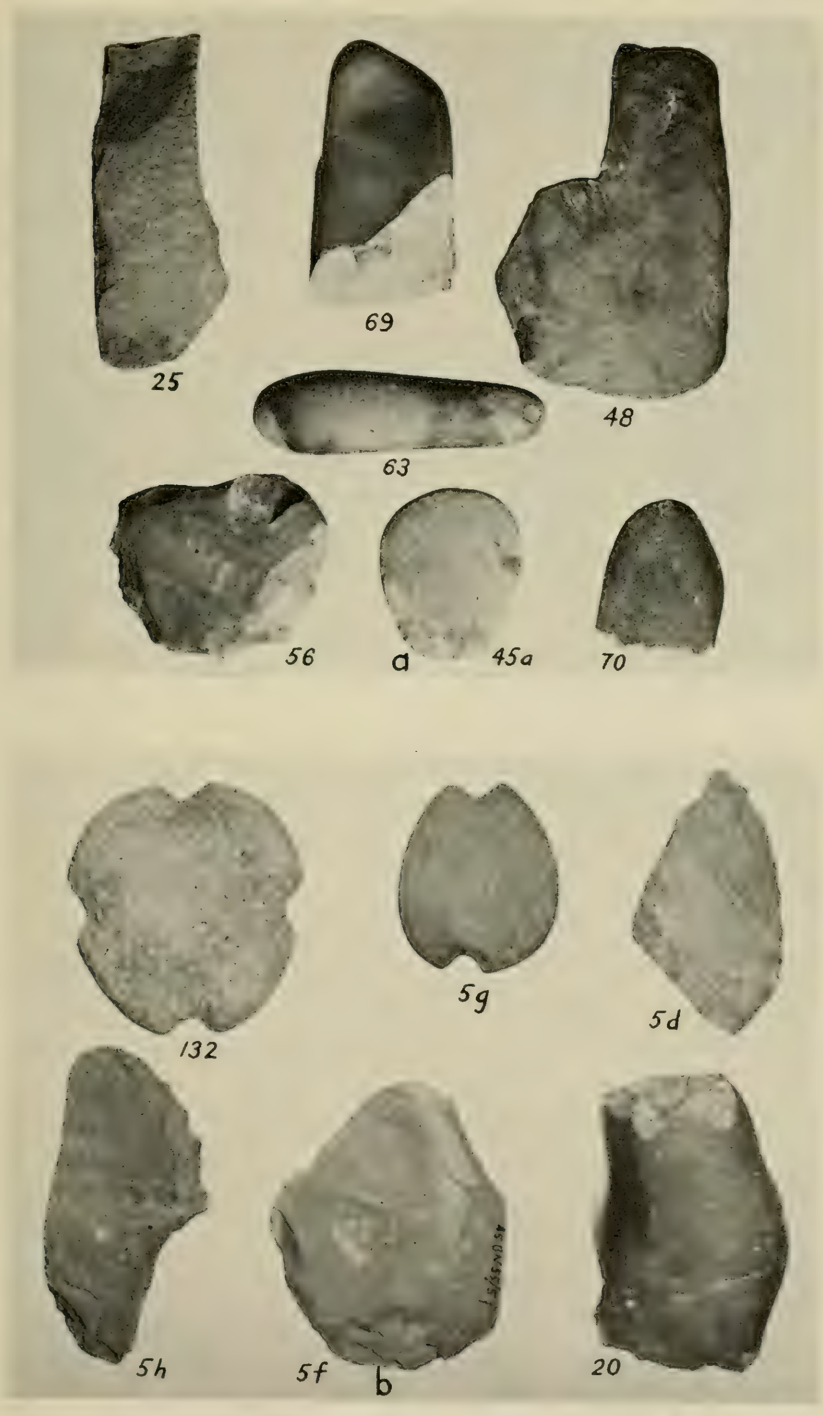
Plate 53

a, Choppers, hammerstones, digging tools from the general site fill. No. 25 is 18.1 cm. long:

25. Basalt digging tool or chopper, 1 1/16 pounds.
45a. Basalt pebble chopper, ½ pound.
48. Quartzite digging tool or chopper, 2 1/16 pounds.
56. Quartzite chopper, 1¼ pounds.
63. Basalt hammerstone, ¾ pound.
69. Andesite chopper, 1⅞ pounds.
70. Basalt hammerstone, ⅝ pound.

b, Net sinkers and large flakes, and a chopper. All are surface finds except the chopper, No. 20. All are percussion worked. No. 5g is 7.0 cm. long, weights are given in pounds.

5d. Micaceous quartzite scraper or cutting edge, ⅛ pound.
5f. Felsite scraper or chopper, surface, ⅜ pound.
5g. Basalt 2-notched net sinker, ⅛ pound.
5h. Quartzite scraper or cutting flake, fragmentary.
20. Basalt hammerstone-chopper, stratum II, ⅞ pound (see pl. 54).
132. Granophyre 4-notched net sinker, surface, beach, 7/16 pound.


25
69
48
63
56
a
45a
70
132
5g
5d
5h
45ON55/51
5f
b
20

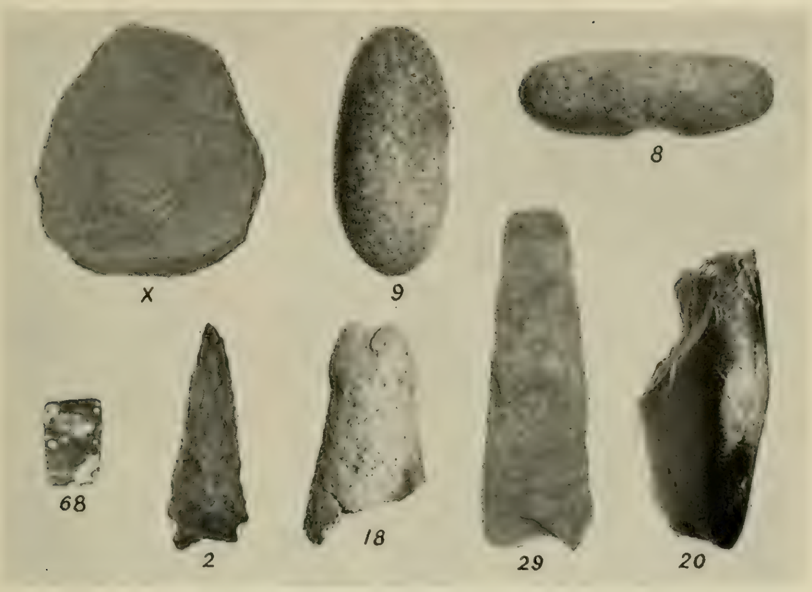
a, Choppers, hammerstones, digging tools from the general site fill. *b*, Net sinkers and large flakes, and a chopper.

PLATE 54

a, Miscellaneous stone artifacts and shell piece. No scale.

x. Food preparing stone, possibly hopper-mortar base, south beach, Sheep Island, vertical measurement 10½ inches, basalt.

2. Basalt projectile point, general midden, 4.9 cm., 5.4 gm.
8. Diorite, war club head (?), burial 1, stratum IV, 9.5 cm. long, ⅜ pound.
9. Porphyritic trachyte war club head (?), burial 1, stratum IV, 9.1 cm. long, 9/16 pound.
18. Granite hand maul top fragment, tripointed, heat cracked, general midden, 8.0 cm. long (see pl. 51, *b*).
20. Basalt hammerstone chopper, general midden (see pl. 53*b*).
29. Micaceous quartzite chisel or scraper, general midden, 7.5 cm. long.
68. *Haliotis pendant*, burial 11, stratum IV, 4 holes, 1.9 cm. long.

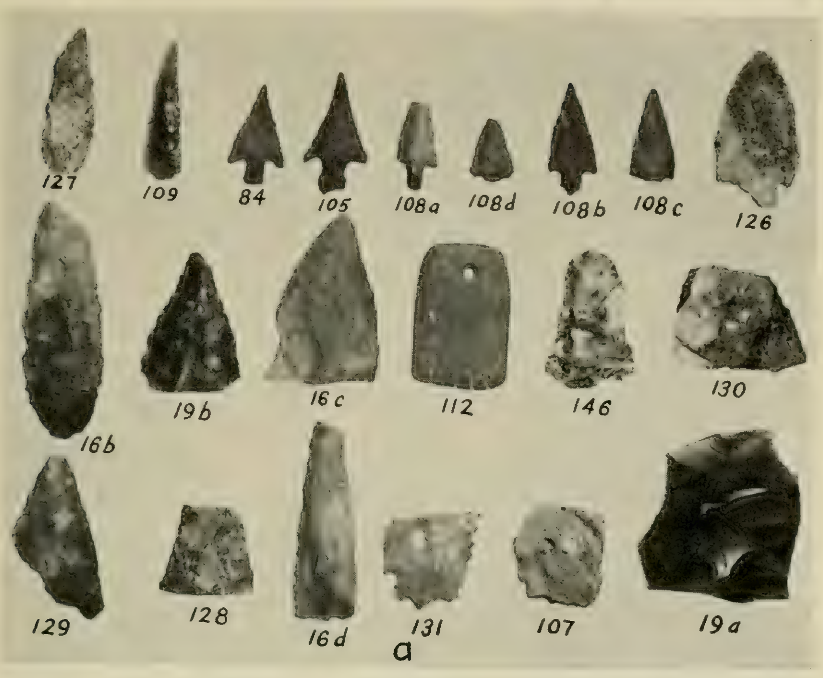

X
9
8
68
2
18
29
20

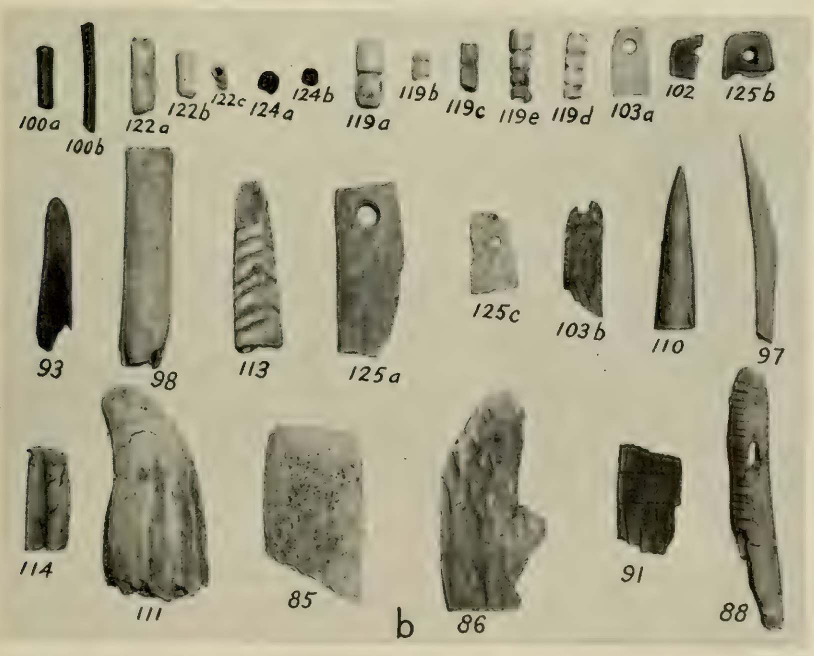
Miscellaneous stone artifacts and shell piece.

Plate 55

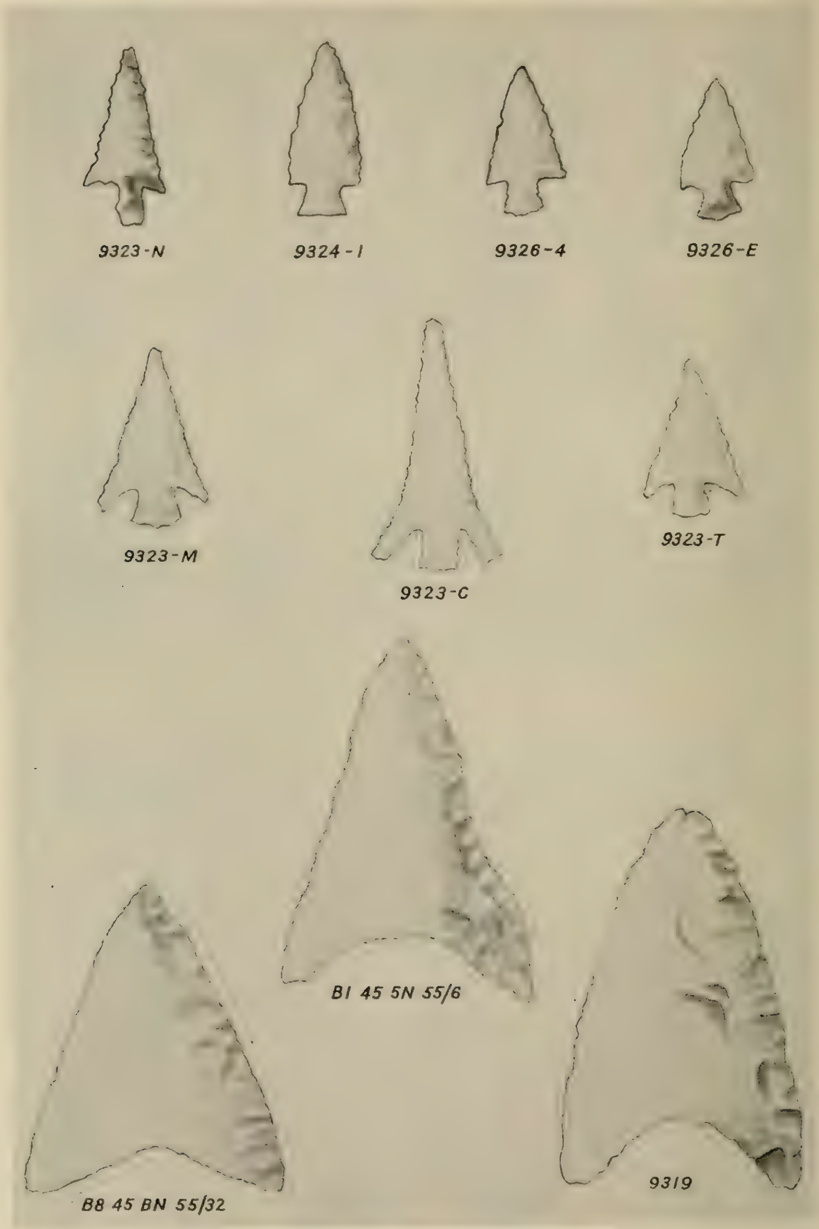
a, Chipped and ground stone from the cremation pits, all showing fire action, No. 109 is 3.0 cm. long, weights in gm.
16b. Opalite projectile point (?), pit 2, broken.
16c. Flinty projectile point (?), pit 2, broken.
16d. Petrified wood point or blade fragment, pit 2.
19a. Jasper blade or scraper fragment, pit 1.
19b. Black chalcedony blade or point fragment, pit 1.
84. Basalt point, Wallula Rectangular Stemmed, serrated, pit 1, layer B, 0.5 gm.
105. Basalt point, probably same, pit 1, layer A, 0.8 gm.
107. Opalite scraper fragment, pit 1, layer A.
108a. Basalt point, Wallula Rectangular Stemmed, pit 1, layer B, ca. 0.6 gr.
108b. Basalt point, same, pit 1, layer B, 0.8 gm.
108c. Basalt point, pit 1, layer B, fragmentary.
108d. Basalt point, broken, pit 1, layer B.
109. Obsidian point, pit 1, layer B, fragmentary, tip curved (melted?).
112. Incised shale pendant, pit 1, layer B.
126. Opalite point, pit 1, layer B, fragmentary.
127. Opalite point, pit 1, layer B, fragmentary.
128. Opalite point, pit 1, layer B, fragmentary.
129. Jasper point, pit 1, layer B, fragmentary.
130. Opalite point, pit 1, layer B, fragmentary.
131. Jasper point, serrated, pit 1, layer B, fragmentary.
146. Opalite scraper (?), pit 1, fragmentary.

b, Cremation pit 1, bone and antler pieces, all calcined. No. 97 is 4.6 cm. long.
85. Tip fragment antler wedge (layer B).
86. Antler tool (wedge?) fragment (layer B).
88. Head of needle or skewer (layer B).
91. Incised bone fragment (comb?) (surface).
93. Tip of valve of 3-piece toggle harpoon (?) (layer A).
97. Bone awl fragment (layer A).
98. Bead or short tube of bird bone (layer A).
100a. Black (calcined) bone bead (layer A).
100b. Black (calcined) bone bead (layer A).
102. Fragment bone pendant (layer A).
103a. Fragment bone pendant (layer A).
103b. Broken bone pendant (layer A).
110. Fragment (tip) bone awl (layer A).
111. Tip antler wedge (layer A).
113. Incised bone (chevrons) fragment (layer B).
114. Incised bone fragment (layer B).
119a. Bone bead, circling incision (layer B).
119b. Bone bead, circling incision (layer B).
119c. Bone bead, circling incision (layer B).
119d. Bone bead, circling incisions (layer B).
119e. Bone bead, circling incisions (layer B).
122a. Bone bead (bird) (layer B).
122b. Bone bead (bird) (layer B).
122c. Bone bead (bird) (layer B).
124a. Juniper seed beads }
124b. Juniper seed beads } Carbonized (layer B).
125a. Bone pendant fragment, drilled (layer B).
125b. Bone pendant fragment, drilled (layer B).
125c. Bone pendant fragment, drilled (layer B).


127
109
84
105
108a
108d
108b
108c
126
16b
19b
16c
112
146
130
129
128
16d
131
107
19a
a


100a
100b
122a
122b
122c
124a
124b
119a
119b
119c
119e
119d
103a
102
125b
93
98
113
125a
125c
103b
110
97
114
111
85
b
86
91
88

a, Chipped and ground stone from the cremation pits, all showing fire action. *b*, Cremation Pit 1, bone and antler pieces, all calcined.


9323-N
9324-I
9326-4
9326-E
9323-M
9323-C
9323-T
BI 45 5N 55/6
B8 45 BN 55/32
9319

Three Columbia Basin projectile-point types.

Top row, Wallula Rectangular-Stemmed. *Middle row*, Middle Columbia Basal-Notched. *Bottom row*, Columbia Mule Ear, Knife.

APPENDIX

LIST OF REPORTS, ARTICLES, AND NOTES RELATING TO THE SALVAGE PROGRAM PUBLISHED IN OTHER SERIES

(As of October 1, 1959)

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